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HQ, US ARMY MATERIEL COMMAND  
HQ, US ARMY TRAINING & DOCTRINE COMMAND

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# MATERIEL ACQUISITION HANDBOOK AMC TRADOC 1987



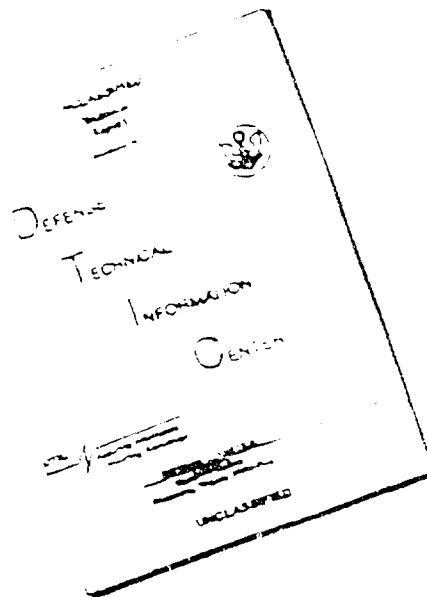
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## FOREWORD


This handbook represents the product of a joint effort by the Army Materiel Command (AMC) and the Army Training and Doctrine Command (TRADOC). The handbook is designed as a tool for effective management of the materiel acquisition process. It is a unique document compiling key materiel acquisition policy promulgated by the Department of Defense and the Department of the Army and supplemented by AMC and TRADOC. The handbook reflects the current procedures for policy implementation and focuses on the Army Streamlined Acquisition Process (ASAP). It includes charts and diagrams for appreciation and understanding of the complex acquisition process and it describes those actions essential for efficient and effective management of the acquisition and support of Army materiel.

This handbook, as a supplement of existing regulations, should be used as a companion to them and not a substitute for them. The contents draw from the knowledge and experience of personnel throughout the acquisition community. The guidance and checklists contained in this handbook make it especially helpful to those unfamiliar with requirements generation and the materiel acquisition process. Policy and procedures, no matter how well devised, are no substitute for innovative application and aggressive execution. This handbook is a basic blueprint for operating within a complex set of rules and procedures. It should be used, not rigidly, but as basic guidance upon which to tailor actions and strategies according to specific needs.

It is an evolutionary document, changing and improving as policy and procedures evolve. The Type Classification, Product Improvement, and Concept Formulation Package and Cost and Operational Effectiveness Analysis processes are currently being examined for revision. Revisions will be reflected in chapter updates as they materialize.

We solicit recommendations for making subsequent publication of this guide the best possible single source of information available to aid the efforts of those engaged in the acquisition of Army materiel. Changes and comments should be sent to HQ AMC (AMCDE-PQP) and HQ TRADOC (ATCD-ET).

  
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AMC-TRADOC PAMPHLET 70-2, MATERIEL ACQUISITION HANDBOOK  
ERRATA/CLARIFICATION SHEET

• This revision of PAM 70-2 neither addresses nor considers the Army's implementation of the Program Executive Officer (PEO) concept of program management. As the mechanism for the implementation of the PEO concept is being defined, there will unquestionably be many places in the handbook where the agent or procedural flow of documents will be changed. In general, we anticipate that WHAT has to be done is still accurately covered. The specifics of who and how will be furnished in individual chapter updates as the details are known. Based on MG(P) Bunyard's 28 Mar 87 memo for record of the PEO Conference in St. Louis, MO, program decision authority is defined as described below:

PROGRAM TYPE	MARB AUTHORITY	PROGRAM DECISION AUTHORITY
PEO Major/DAPs	Co-chaired by PEO & MSC CDR (PEO has the lead). Both sign recommendation to AAE.	AAE for DAPs; SECDEF for DOD Major
PEO Non-Major (i.e., IPR programs)	Co-chaired at the PEO & MSC level (PEO has the lead).	PEO (IPR will be at the the MSC/PEO level. PEO has the lead.)
Non PEO	MSC	MSC CDR

• Chapter 9, Program Management Documentation: Term "Materiel Documents" is in error and should be changed to "Requirements Documents" throughout.

• The Joint Requirements and Management Board (JRMB) has been replaced by the Defense Acquisition Board (DAB), and should be changed throughout the handbook. The DAB will focus on validating acquisition requirements and balancing user requirements with design solutions to yield affordable, timely and effective weapon systems. Delete the definition of JRMB on page G.17 and on page G.8 insert the following definition: "Defense Acquisition Board (DAB). The DAB is an advisory body to the Secretary of Defense (SECDEF). It conducts reviews of major DOD programs and advises and recommends program decisions to the SECDEF."

• In his Mar 87 testimony to Congress, Mr. Codwin, Under Secretary of Defense for Acquisition, discussed two additional milestones - "MS IV", to address readiness, and "MS V", to address block modifications and lay the groundwork for retirement/new start decisions. We expect these to be addressed in future revisions to DODD 5000.1 and DODI 5000.2. (No impact on existing milestones.)



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A-1	

● Although Market Surveillance/Investigation has been described in Chapter 17, NDI (to keep it usable in lift-out form), it pertains to all systems acquisitions (reference AR 70-1, Chapter 8).

● Chapter 17, NDI, page 17-2, I.A.3.c. Delete the reference to HEMTT in the third sentence and substitute the following: "The High-Mobility Multi-purpose Wheeled Vehicle (HMMWV)." The HMMWV is a better example of the third level of effort.

● Page 1.16, paragraph 6.b., requires that the acquisition strategy be approved by the program decision authority. However, this does not necessarily mean a formal milestone decision review will be required. For example, an acquisition strategy may be submitted for approval to the appropriate program decision authority (see table above), independent of a formal numbered milestone and whether or not it is a part of the SCP/DCP. The acquisition strategy should be reviewed by the MARB with CBTDEV participation. Approval by the program decision authority permits the program to proceed as outlined in the acquisition strategy.

● Page 15.6: The STAR Review is not mandatory. It may be convened to provide top-down consensus on basic program direction, and is intended to get a "pulse check" on issues or vested interests that lie outside the purview of the decision authority (e.g., inadequate level of programmed resources). The STAR Review may be held either before or after initial acquisition strategy approval (PM/PEO's call).

● Appendix L, Life Cycle Model: It is important to note that even though the traditional and streamlined (ASAP/NDI) processes are described separately, they are representative program strategies/structures within a broad spectrum, and other variations/additional tailoring should be considered whenever driven by specific program needs. The established order of precedence for materiel alternatives (emphasizing PI or NDI approaches prior to new system development) has a corollary in terms of acquisition strategy/program structure: Use streamlined approaches to the greatest practical extent prior to employing the "full-blown" traditional LCSMM. The LCSMM provides a framework of major events that need to occur, and is intended to assist in identifying steps which could be bypassed or simplified with minimal risk, as well as those which are essential to the success of the program.

● AR 70-1 discusses two requirements documents that have been deleted from AR 71-9: Non-System Training Device Requirement (NSTDR), and Expedited Essential Required Operational Capability (EEROC). AR 71-9 replaces NSTDR with Training Device Requirement (TDR), which still applies to training devices not associated with the basic system; and introduces the Operational Needs Statement. PAM 70-2 aligns with AR 71-9 in both instances.

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Research, Development and Acquisition

I

AMC - TRADOC  
MATERIEL ACQUISITION HANDBOOK

Contents	Page
Introduction . . . . .	VIII
Purpose . . . . .	VIII
Scope . . . . .	VIII
Explanation of Terms and Abbreviations . . . . .	VIII
References . . . . .	VIII
General Contents . . . . .	VIII
Chapter 1 - The Army Materiel Acquisition Process	
Chapter Guide . . . . .	1.1
Overview . . . . .	1.1
Program Categories . . . . .	1.4
DOD Major Program . . . . .	1.4
Designated Acquisition Program . . . . .	1.4
In-Process Review (IPR) Program . . . . .	1.4

## Chapter 1 - The Army Materiel Acquisition Process (continued)

Page

Innovations . . . . .	1.7
Streamlined Requirements Generation . . . . .	1.7
OSD Streamlining . . . . .	1.7
Continuous Comprehensive Evaluation . . . . .	1.7
Manpower and Personnel Integration . . . . .	1.7
The Materiel Acquisition Team . . . . .	1.8
Program/Project/Product Manager (PM) . . . . .	1.8
Weapon System Staff Manager (WSSM) . . . . .	1.11
Department of the Army System Coordinator (DASC) . . . . .	1.11
Force Integration Staff Officer (FISO) . . . . .	1.11
TRADOC System Staff Officer (TRASSO) . . . . .	1.12
TRADOC System Manager (TSM)/Director of Combat Development . . . . .	1.12
Other Acquisition Team Members Summary . . . . .	1.12
TRADOC Systems Training Officer . . . . .	1.12
DA Logistics Support Officer (DALSO) . . . . .	1.13
Personnel System Staff Officer (PERSSO) . . . . .	1.13
Threat Integration Staff Officer (TISO) . . . . .	1.13
The Army Streamlined Acquisition Process . . . . .	1.15
Mission Area Analysis . . . . .	1.18
Requirements/Technology Base Activities . . . . .	1.20
Program Initiation . . . . .	1.22
Proof of Principle Phase . . . . .	1.24
Milestone I/II . . . . .	1.28
Development Proveout Phase . . . . .	1.30
Milestone III . . . . .	1.32
Production and Deployment Phase . . . . .	1.33

II

## Chapter 2 - Long-Range RDA Planning

Chapter Guide . . . . .	2.1
Mission Area Materiel Plan (MAMP) . . . . .	2.2
Responsibilities . . . . .	2.2
Chapter Proponent Offices . . . . .	2.9
References . . . . .	2.10
Time Constraints . . . . .	2.10
Procedure . . . . .	2.12
Process Outline . . . . .	2.12

### MATERIEL REQUIREMENTS DOCUMENTS

## Chapter 3 - Operational and Organizational Plan (O&O Plan)/Justification for Major System New Start (JMSNS)

Chapter Guide . . . . .	3.1
Responsibilities . . . . .	3.3
Chapter Proponent Offices . . . . .	3.3
References . . . . .	3.4
Time Constraints . . . . .	3.4
Procedure . . . . .	3.7
Process Outline . . . . .	3.7

Chapter 3 - Operational and Organizational Plan (O&O Plan)/Justification Page  
for Major System New Start (JMSNS) (continued)

O&O Plan Format . . . . .	3.12
O&O Plan Checklist . . . . .	3.15
JMSNS Format . . . . .	3.21
JMSNS Checklist . . . . .	3.22

Chapter 4 - Required Operational Capability (ROC)/Joint Service  
Operational Requirement (JSOR)

Chapter Guide . . . . .	4.1
Responsibilities . . . . .	4.3
Chapter Proponent Offices . . . . .	4.4
References . . . . .	4.4
Time Constraints . . . . .	4.5
Procedure . . . . .	4.7
Process Outline . . . . .	4.7
Required Operational Capability (ROC) Format . . . . .	4.10
Required Operational Capability (ROC) Checklist . . . . .	4.14

Chapter 5 - Training Device Requirements Documents

Chapter Guide . . . . .	5.1
Responsibilities . . . . .	5.2
References . . . . .	5.2
Time Constraints . . . . .	5.3
Procedure . . . . .	5.3
TDR Process Outline . . . . .	5.4
Training Device Need Statement (TDNS) Format . . . . .	5.14
TDR Checklist . . . . .	5.22
Army-wide Commercial Training Device Requirements (CTDR) . . . . .	5.28
MACOM - Peculiar CTDR Process Outline . . . . .	5.32
CTDR Format . . . . .	5.34
CTDR Checklist . . . . .	5.36

III

Chapter 6 - Reliability, Availability, and Maintainability (RAM)

Chapter Guide . . . . .	6.1
Responsibilities . . . . .	6.1
Chapter Proponent Offices . . . . .	6.1
References . . . . .	6.1
Time Constraints . . . . .	6.2
Process Outline . . . . .	6.3
Sample Forwarding Letters . . . . .	6.5

Chapter 7 - Acquisition Strategy (AS)

Chapter Guide . . . . .	7.1
Responsibilities . . . . .	7.1
Chapter Proponent Offices . . . . .	7.2
References . . . . .	7.2
Time Constraints . . . . .	7.3
Process Outline . . . . .	7.4
Acquisition Strategy Format . . . . .	7.10

## Chapter 8 - Acquisition Plan (AP)

Page

Chapter Guide . . . . .	8.1
Responsibilities . . . . .	8.2
Chapter Proponent Office . . . . .	8.2
References . . . . .	8.3
Time Constraints . . . . .	8.3
Procedure . . . . .	8.3
Process Outline . . . . .	8.4
Content of the AP . . . . .	8.8

## Chapter 9 - Program Management Documentation (PMD)

Part I, Chapter Guide . . . . .	9.1
Part I, Responsibilities . . . . .	9.2
Part I, Chapter Proponent Offices . . . . .	9.2
Part I, References . . . . .	9.2
Part I, Time Constraints . . . . .	9.2
Part II, Definitions, Section 1, Materiel Documents . . . . .	9.5
Part II, Definitions, Section 2, Decision Documents . . . . .	9.7
Part II, Definitions, Section 3, Program Documents . . . . .	9.9
Part III, Section 1, Materiel Documents . . . . .	9.19
Part III, Section 2, Decision Documents . . . . .	9.25
Part III, Section 3, Program Documents . . . . .	9.29
Part IV, Requirements/PMD Review Forums . . . . .	9.41

IV

## Chapter 10 - Concept Formulation Package (CFP)

Chapter Guide . . . . .	10.1
Trade-Off Determination (TOD) . . . . .	10.1
Trade-Off Analysis (TOA) . . . . .	10.1
Best Technical Approach (BTA) . . . . .	10.2
Cost and Operational Effectiveness Analysis (COEA) . . . . .	10.2
Responsibilities . . . . .	10.3
Chapter Proponent Offices . . . . .	10.3
References . . . . .	10.3
Procedure . . . . .	10.4
Process Outline . . . . .	10.4

## Chapter 11 - Manpower and Personnel Integration (MANPRINT)

Chapter Guide . . . . .	11.1
Responsibilities . . . . .	11.3
Chapter Proponent Offices . . . . .	11.4
References . . . . .	11.5
Time Constraints . . . . .	11.5
Process Outline . . . . .	11.6
System MANPRINT Management Plan (SMMP) Format . . . . .	11.17

Chapter 12 - Integrated Logistic Support (ILS)	Page
Chapter Guide . . . . .	12.1
Responsibilities . . . . .	12.5
Chapter Proponent Offices . . . . .	12.5
References . . . . .	12.5
Time Constraints . . . . .	12.7
Procedure . . . . .	12.7
ILS Functional Responsibility in Materiel Acquisition . . . . .	12.26
Logistic Support Analysis Task Assignment . . . . .	12.28

### Chapter 13 - Test and Evaluation (T&E)

Chapter Guide . . . . .	13.1
Chapter Proponent Offices . . . . .	13.1
References . . . . .	13.1
Objectives . . . . .	13.1
Overview/Responsibilities . . . . .	13.2
Test and Evaluation Managers . . . . .	13.4
Test Technology/Facilities . . . . .	13.4
Test Funding . . . . .	13.5
Continuous Evaluation . . . . .	13.5
Time Constraints . . . . .	13.6
Process Outline . . . . .	13.6

V

### Chapter 14 - Basis of Issue Plan (BOIP) and Qualitative and Quantitative Personnel Requirements Information (QQPRI)

Chapter Guide . . . . .	14.1
Responsibilities . . . . .	14.3
Chapter Proponent Offices . . . . .	14.3
References . . . . .	14.3
Time Constraints . . . . .	14.4
Procedure . . . . .	14.7
Process Outline . . . . .	14.7

### MILESTONE REVIEW

### Chapter 15 - Materiel Acquisition Decision Process (MADP) Reviews

Chapter Guide . . . . .	15.1
MADP Review Levels . . . . .	15.1
MADP Review Bodies . . . . .	15.1
MADP Review Milestones . . . . .	15.8
MADP Review Documentation . . . . .	15.9
Preparation for MADP Reviews . . . . .	15.16
MADP Reviews and the Planning, Programing, Budgeting and Execution System (PPBES) . . . . .	15.18
Changes to IPR Program Requirements Documents . . . . .	15.18
Responsibilities . . . . .	15.19
Chapter Proponent Offices . . . . .	15.20
References . . . . .	15.20

Chapter 15 - Materiel Acquisition Decision Process (MADP)  
Reviews (continued)

Page

Time Constraints . . . . .	15.20
Procedure . . . . .	15.23
Process Outline . . . . .	15.24
TRADOC Materiel Evaluation Committee (TMEC). . . . .	15.30
TRADOC Mailing List for IPR Packages . . . . .	15.34

Chapter 16 - Product Improvement (PI) and Preplanned Product Improvement (P3I)

Chapter Guide . . . . .	16.1
Responsibilities . . . . .	16.2
Chapter Proponent Offices . . . . .	16.3
References . . . . .	16.3
Time Constraints . . . . .	16.3
Procedure . . . . .	16.4
Process Outline . . . . .	16.4
Preplanned Product Improvement . . . . .	16.12

Chapter 17 - Nondevelopmental Items (NDI)

Introduction . . . . .	17.1
What is a Nondevelopmental Item? . . . . .	17.1
NDI Benefits and Challenges . . . . .	17.2
Considerations for selecting NDI . . . . .	17.3
AMC and TRADOC Roles in NDI Acquisition . . . . .	17.5
AMC Role . . . . .	17.5
AMC NDI Responsibilities . . . . .	17.5
TRADOC Role . . . . .	17.6
TRADOC NDI Responsibilities . . . . .	17.7
Overview of NDI Acquisition Process . . . . .	17.7
Market Surveillance/Investigation . . . . .	17.17
Market Surveillance . . . . .	17.17
Market Investigation . . . . .	17.19
Other NDI Considerations . . . . .	17.24
Procurement . . . . .	17.24
Integrated Logistics Support . . . . .	17.31
Test and Product Assurance . . . . .	17.36
Value Engineering . . . . .	17.39
Resources . . . . .	17.40
Appendix A - Reliability NDI Market Investigation Criteria . . . . .	17.45
Appendix B - USASAC IME/Foreign Equipment Role in the Acquisition Process . . . . .	17.47



## OTHER CONSIDERATIONS

Chapter 18 - Type Classification (TC)	Page
Chapter Guide . . . . .	18.1
TC and Procurement . . . . .	18.2
TC and Reprocurement . . . . .	18.3
TC as a Result of Product Improvement . . . . .	18.3
TC and NDI . . . . .	18.4
TC Cataloging Activities . . . . .	18.4
TC and Accelerated/Directed Acquisitions . . . . .	18.4
Responsibilities . . . . .	18.5
Chapter Proponent Offices . . . . .	18.5
References . . . . .	18.6
Time Constraints . . . . .	18.6
Procedure . . . . .	18.6
Process Outline . . . . .	18.6
Suggested Format for TC Recommendation . . . . .	18.12
Safety and Health Data Sheet . . . . .	18.13

## Chapter 19 - Program Management Control System (PMCS)

Chapter Guide . . . . .	19.1
Responsibilities . . . . .	19.2
Chapter Proponent Offices . . . . .	19.2
References . . . . .	19.3
Time Constraints . . . . .	19.3
Procedure . . . . .	19.3
Process Outline . . . . .	19.4

VII

## APPENDIXES

Appendix A - Sample Transmittal Letters for Requirements Documents . . .	A.1
B - System Acquisition Checklist . . . . .	B.1
C - The Planning, Programing, Budgeting and Execution System (PPBES) . . . . .	C.1
D - Threat in the Materiel Acquisition Process . . . . .	D.1
E - Other Cost Control Mechanisms . . . . .	E.1
F - Cost Assessment . . . . .	F.1
G - Glossary of Terms . . . . .	G.1
H - Master Reference List . . . . .	H.1
I - List of Abbreviations and Acronyms . . . . .	I.1
J - Letter of Instruction for Industry Review of Draft Materiel Requirements Documents . . . . .	J
K - International Armament Cooperative Opportunities . . . . .	K.1
L - Materiel Acquisition Life Cycle Model . . . . .	L.1

## INTRODUCTION

1. Purpose. This handbook describes policy, procedures, and responsibilities for initiating requirements, conducting research and development, and acquiring materiel items and systems to satisfy HQDA-approved requirements.

2. Scope. This guide applies to Headquarters, U.S. Army Materiel Command (HQ AMC); all activities/agencies reporting to HQ AMC; Headquarters, U.S. Army Training and Doctrine Command (HQ TRADOC); and all activities/agencies reporting to HQ TRADOC.

3. Explanation of terms, abbreviations, and acronyms.

a. Explanation of terms, for purposes of this handbook, is provided in appendix G.

b. An abbreviation and acronym list is provided at appendix I.

4. References. A master reference list is at appendix H.


5. General Contents.


VIII

a. This handbook begins with an overview of the Army Streamlined Acquisition Process (ASAP), using charts and text to describe phases and players, and referencing the following chapters to show their relationship within the overall process.

b. Chapters 2 through 19 provide details on actions/practices necessary for successful implementation of the materiel acquisition process. Each chapter provides a general description of the subject area and AMC and TRADOC responsibilities, time constraints, and directives for the subject area. Additionally, when appropriate, chapters contain step-by-step narrative and flow-charted procedures for implementing a specific aspect of the materiel acquisition process. Flow chart symbols are:

(1)  - representing organizations involved in the process.

(2)  - representing the key documents for the process.

(3)  - representing documents contributing to the process.

c. Appendixes provide information that applies to more than one chapter. Appendix L contains an ASAP Developmental Program Life Cycle System Management Model and a Gantt chart.

## **Chapter 1**

# **THE ARMY MATERIEL ACQUISITION PROCESS**

## Chapter Guide

This chapter depicts, in abbreviated form, the Army's Streamlined Acquisition Process (ASAP). ASAP represents a tailored path within the DOD process and is employed by AMC and TRADOC as the primary model for AMC/TRADOC weapon system development programs. The ASAP process includes innovative approaches by the entire materiel acquisition community to tailor the materiel acquisition process as prescribed by the Office of Management and Budget, DOD, and Army directives. By tailoring each program to the actual level of effort required, significant reductions in time and resource expenditure can be achieved in providing critically needed new or modified materiel to the field Army. This chapter--

- (1) Provides an overview of the acquisition process.
- (2) Describes innovations.
- (3) Describes the Materiel Acquisition Team.
- (4) Outlines the Army Streamlined Acquisition Process (ASAP).

## Overview

The purpose of the materiel acquisition process is to prescribe a sequence of events and phases of program activities and decisions leading to efficient and effective fielding of fully supportable systems responsive to validated Army requirements. Phases and events are tailored to meet the individual characteristics of each program. The process is initiated with the approval of a need and extends through successful completion of development, production, and deployment of the system. The principal participants for major system development are the staffs of the Secretary of Defense (SECDEF), the Secretary of the Army (SA), the Chief of Staff of the Army (CSA), the U.S. Army Materiel Command (AMC), and the US Army Training and Doctrine Command (TRADOC).

The Concept Based Requirements System (CBRS) is a systematic and flexible approach to determining future Army needs and resolving deficiencies in current battlefield capabilities. As the name implies, a concept of what the Army must do on the battlefield drives the Army of the future. CBRS is based on an indepth examination of the current umbrella concept, current and future missions, current and projected worldwide threat, historical experiences, and technological forecasts. The CBRS is a comprehensive front-end approach to attain the Army goal of a balance among readiness, modernization, sustainability, and force design.

### Overview

The CBRS process develops concepts and documents requirements for programs leading to the fielding of products to ensure success on present and future battlefields. Within CBRS, analytical studies called Mission Area Analyses (MAAs) are conducted by the proponent to determine capability deficiencies in the programmed force against the threat in defined scenarios. Solutions to these deficiencies will lead to changes in doctrine for the way the Army will fight and support, changes in how training is accomplished, changes to organizations, or initiation of the materiel acquisition process for acquisition or improvement of equipment. Solutions usually require a combination of these actions due to their close interrelationships. Doctrinal training and force design developments, as well as Army and defense acquisition decisions on major systems and other combat development actions, are linked to CBRS validated requirements.

Before initiating a new development program to satisfy an Army need or deficiency, four alternatives must be considered.

1. Changing tactics, training, doctrine, or organizations to satisfy a need.

2. Buying off-the-shelf or modifying existing commercial, other service, or foreign equipment to meet a system requirement (Nondevelopmental Item (NDI)).

3. Improving an existing Army item to take advantage of existing training and logistics investments (Product Improvement/Pre-Planned Product Improvement (PI/P3I)).

4. New development program.

The Army relies on a strong technology base to keep pace with the threat and on commercial firms to support this base. In addition, Government laboratories, federally funded research and development centers, and other nonprofit organizations are vital sources of new technology and concepts in areas that are not attractive or suitable for commercial interests. Industry and educational institutions are encouraged to participate in the competitive development of system and component design concepts. Technology and concepts developed by the Government, or as a result of Army contracts, may be made available to the private sector for use in developing competitive system design concepts or to benefit the civilian community.

The Army's goal is to acquire effective materiel in the shortest time and with acceptable operation and support costs. The acquisition process is tailored to the requirements of each program. Materiel acquisition managers must establish standards to evaluate the risk and make judgements for each individual case. Procedures for reducing

## 1



**\*THRU FIRST UNIT EQUIPPED**

## Overview

acquisition time include-- acceptance of reasonable risk, full funding for the development, stabilizing the requirement when the Required Operational Capability (ROC) is approved, planning for concurrent activities in the development process, and combining or eliminating entire development steps or acquisition phases.

**PROGRAM CATEGORIES** - There are three categories of Army acquisition programs. Programs are designated in these categories based on development risks, urgency, Congressional interest, joint Service involvement, and resource requirements.

**DOD Major Program:** Designated by SECDEF -- Usually a program requiring a Justification for Major System New Start (JMSNS) (estimated funding exceeds \$200 million RDTE or \$1 billion procurement (FY80 constant dollars)) will be considered by the SECDEF for designation as a DOD major program. DOD major programs are reviewed by the Joint Requirements Management Board (JRGB) and approved by the SECDEF at each milestone, unless delegated to the Army. (The Milestone III decision is generally delegated.)

**1.4**

**Designated Acquisition Program (DAP):** Designated by the Army Acquisition Executive (AAE). Based on review of a HQ TRADOC-approved Operational and Organizational Plan (O&O Plan). Estimated funding exceeds \$100M RDTE or \$500M procurement. At each milestone, DAPs are reviewed by the Army Systems Acquisition Review Council (ASARC) and approved by the AAE.

**In-Process Review Program:** All other programs -- At each milestone, IPR programs are reviewed by a materiel developer-conducted IPR and the results are jointly approved by designated materiel developer and combat developer authorities.



# THE ARMY MATERIEL ACQUISITION PROCESS

1

Program Type	Milestones	Review Documents	Reviewed by	Decision Document	Decision Authority
DOD Major	Mission Need	JMSNS & O&O Plan	DAE AAE	PDM	SECDEF
	I/II	DCP	JRMB AAE ASARC	SDDM	
	III	DCP & IPS*			
DAP	Mission Need	O&O Plan	MATDEV/ CBTDEV	**	CBTDEV
	I/II	DCP	AAE ASARC	SADM	AAE
	III	DCP & IPS*			
IPR	Mission Need	O&O Plan	MATDEV/ CBTDEV	**	CBTDEV
	I/II	DCP	IPR	SADM	MATDEV/ CBTDEV
	III	DCP & IPS*	***		

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- \* - only if requested by decision authority
- \*\* - preparation and approval of the O&O Plan by the CBTDEV constitutes program initiation for DAP and IPR programs
- \*\*\* - if nonconcurrence from AMC/TRADOC/USALEA/MTMC cannot be resolved with the dissenting command, the issue will be raised to AMC/TRADOC/USALEA/MTMC commander level, if necessary.

## ARMY STREAMLINED ACQUISITION PROCESS (ASAP)

AAE	Army Acquisition Executive	HQDA	Headquarters, Department of the Army
ASARC	Army Systems Acquisition Review Council	IPR	In-Process Review
CBTDEV	Combat Developer	IPS	Integrated Program Summary
DAE	Defense Acquisition Executive	JMSNS	Justification for Major System New Start
DAP	Designated Acquisition Program	JRMB	Joint Requirements and Management Board
DCP	Decision Coordinating Paper	MATDEV	Materiel Developer
DCSRDA	Deputy Chief of Staff for Research, Development and Acquisition	O&O Plan	Operational & Organizational Plan
DOD	Department of Defense	PDM	Program Decision Memorandum
DSARC	Defense Systems Acquisition Review Council	SADM	System Acquisition Decision Memorandum
		SDDM	Secretary of Defense Decision Memorandum
		SECDEF	Secretary of Defense

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## INNOVATIONS

**STREAMLINED REQUIREMENTS GENERATION.** Procedures have been introduced to reduce both the types of materiel requirements documents and the amount of time needed to obtain their approval (chapters 3-5).

**OSD STREAMLINING.** DODD 5000.43 establishes policy for streamlining solicitation and contract requirements by:

1. Specifying contract requirements in terms of results desired.
2. Precluding premature application of design solutions, specifications, and standards.
3. Tailoring contract requirements to unique circumstances of individual acquisition programs.
4. Limiting the contractual applicability of referenced documents to only those that are essential and are directly cited.
5. Authorizing the publication of MIL-HDBK-248. This handbook provides detailed guidance for the application of this policy during system acquisition.

1.7

**CONTINUOUS EVALUATION.** Continuous evaluation (CE) represents a new thrust to assure the continuous flow of information regarding system status including planning, testing, data compilation, analysis, evaluation, conclusions, and reporting to all members of the Acquisition Team from the initial O&U Plan through deployment and assessment of field performance. Continuous evaluation is performed by all members of the Acquisition Team. A major objective is for the members to be active in surfacing critical problems at the earliest opportunity so that they may be addressed and resolved before they impact important decisions.

**MANPOWER AND PERSONNEL INTEGRATION (MANPRINT).** MANPRINT is an umbrella term integrating human factors engineering, manpower, personnel, training, health hazard, and system safety into the materiel acquisition process. The goal of MANPRINT is to equip the soldier, rather than to man the equipment. MANPRINT influences materiel system design so that systems can be effectively and safely operated and maintained within the manpower structure, personnel, skill, and training resources constraints of the Army (see chapter 11).

## THE MATERIEL ACQUISITION TEAM

"Acquisition Team" is a concept which assures that the appropriate user/developer elements are drawn together to perform critical tasks and carry the effort forward during early stages of program formulation, especially in the absence of an established Special Task Force/Study Group or formal Program Management Office (PMO). In a more generic sense, Acquisition Team is the umbrella term for a variety of groups.

The acquisition team will be drawn from appropriate elements of the MATDEV, CBTDEV, user, tester, evaluator, logistician, personnel, trainer, transportability, and intelligence/security organizations, with industry interface where sanctioned by legal review. The MATDEV and CBTDEV form a matrix as shown in the figure below. Each will be discussed starting with the program manager (PM) and progressing counterclockwise.

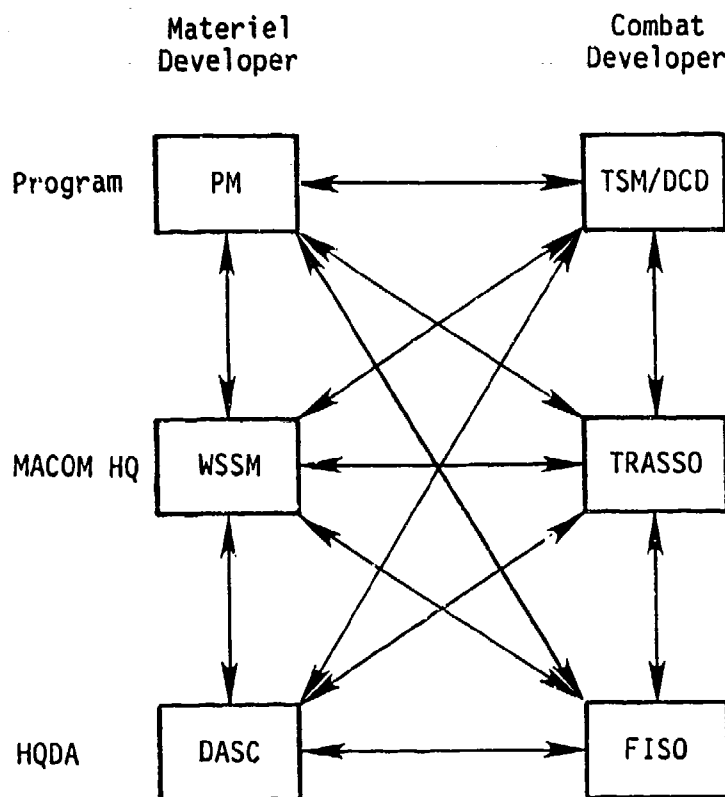
### Program/Project/Product Manager (PM)):

PM is a generic abbreviation meaning program, project, or product manager. The PM is an individual personally chartered to manage the entire materiel acquisition process for a program. An AMC PM is usually established at a major subordinate command (MSC) with an appropriate staff. This staff will be a small core of individuals assigned to manage the program activities and will rely on the MSC to provide functional support personnel to assist in development, acquisition, and fielding of a weapon system. The MSC functional support will be tailored to provide appropriate, adequate, and timely skill disciplines relative to the acquisition phase of the program. The PM is responsible for all aspects of his program and may be called on to present and defend his program before milestone decision reviews (IPRs, ASARCs and JRMBS) and Congressional committees. He is responsible for developing and coordinating the program's Acquisition Strategy and the decision documentation submitted to the milestone review.

Prior to establishment of a PMO, for systems for which a PMO is not justified, program management functions will be performed by a team assigned within one of the AMC RDE Centers.

At any time during the Proof of Principle Phase an MSC commander may recommend to HQ AMC that a Provisional PMO be established. This request will be based on--

- a. Progress made during the Proof of Principle Phase.
- b. Scope/workload requirements of the program.
- c. Prospects for a "Go Decision" at Milestone I/II.



**Program/Project/Product Manager Cont'd**

A narrative justification addressing the intensive management requirement will be provided to HQ AMC. HQ AMC approval will result in the provisional establishment of a PMO and the designation of an acting PM. Functional support will be detailed or provided as required, from Advanced Systems Concept Office/Research, Development and Engineering/MSc matrix organization. The provisional PMO will form the nucleus of the future, formally chartered PMO.

HQ AMC will begin the PM selection process upon approval of MSC Commander's recommendation and/or establishment of the provisional PMO. Formal designation will follow a "Go Decision" at Milestone I/II at which time the PM office will be formally established and the charter for the designated PM finalized and forwarded for approval and signature.

The tour of duty of a major program manager will normally be not less than 4 years, or until completion of a major acquisition phase. Tenure for all PMs will coincide, insofar as possible, with major program milestones.

**1.10**

Transition of a PM system to functional management responsibility and termination of a PMO will usually occur during the Production-Deployment Phase. Initial Operational Capability (IOC) is the life-cycle event at which a PM system will be considered for transition. To transition a PM managed system, three separate actions are required:

(1) Initial phase of the fielding process is successfully completed (i.e., achievement of IOC).

(2) HQ AMC developed PM system/item transition criteria has been satisfied.

(3) HQ AMC approves the system transition plan in its entirety.

PM managed systems are to be transitioned to MSC functional management as soon as possible after achieving IOC, unless there are valid reasons to delay such action. Exceptions from the norm are allowed, but must be fully justified.

The PMO will be terminated when all assigned systems have been transitioned and CG, AMC/Secretary of the Army approve PMO termination plan.

**WEAPON SYSTEM STAFF MANAGER (WSSM):**

The WSSM is a HQ AMC point of contact for a system. His job is to coordinate the development of a HQ AMC position on acquisition issues for his system(s). He relies on functional expertise residing in other HQ AMC staff level offices in order to provide a comprehensive analysis of problems arising in a program. The team he forms from the HQ AMC functional offices is called a Weapons System Management Team (WSMAT).

**DEPARTMENT OF THE ARMY SYSTEM COORDINATOR (DASC)**

The DASC is an individual in the Office of the Deputy Chief of Staff for Research, Development, and Acquisition (ODCSRDA) who is the HQDA focal point representing the materiel developer for acquisition matters relating to a specific system. He is usually a major, lieutenant colonel, or civilian equivalent. His responsibilities are to ensure that HQDA is aware of all significant events in the system development process and that the PM is aware of all budget, policy, requirement, and doctrinal actions affecting his program. In order to do this, he actively interacts with all concerned Army Staff agencies. The DASC plays a major role in providing support for program and budget development, preparation, and defense of his system's resource requirements for submission to the Congressional appropriation arena, and has a key role in responding to Congressional inquiries. He is the HQDA POC, orchestrator, and expeditor for all briefings and documentation in preparation for system ASARCs and JRMBs.

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**FORCE INTEGRATION STAFF OFFICER (FISO):**

The FISO is an individual in the Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS) representing the combat developer (user) on the DA Staff. He is usually a major or lieutenant colonel. His concern is integration of new systems into the Army force structure. He has a primary DA role in the requirements process. Once a requirement is approved, he monitors actions to develop the Basis of Issue Plan (BOIP), manpower requirements, training considerations, strategy and doctrine implications, and assignment of resources. He serves as coordinator between the user community and the DASC (materiel developer).

**TRADOC SYSTEM STAFF OFFICER (TRASSO):**

The TRASSO, usually a captain, major, lieutenant colonel, or equivalent civilian, is designated to function as principal HQ TRADOC point of contact for assigned materiel systems, projects, or programs. TRASSOs are normally selected from the staff assigned to one of the Mission Area Directorates within the Office of the Deputy Chief of Staff for Combat Developments (ODCSCD). The TRASSO monitors all aspects of the development program for assigned systems to ensure that all events are progressing properly. He coordinates development and approval of the HQ TRADOC position for milestone decision reviews and other issues for his systems. He expedites processing of all system-related actions through the HQ TRADOC staff, either to HQDA, HQ AMC, or to the proponent TRADOC school.

**TRADOC SYSTEM MANAGER (TSM)/DIRECTOR OF COMBAT DEVELOPMENTS:**

The TSM is appointed and chartered by the CG TRADOC to function as focal point for coordination of the combat developer, user, and trainer efforts in the development and acquisition of assigned system(s). TSMs are appointed for selected DUD Major and DAP programs. In some cases, TSMs have been appointed for a family of systems such as special electronic mission aircraft systems. TSMs are appointed early in the development cycle, normally at the same time as the PM. He is the TRADOC counterpart of the PM and is usually located at the proponent school. For systems without an assigned TSM, the Director of Combat Developments (DCD) at the proponent school serves as the focal point.

**1.12****OTHER ACQUISITION TEAM MEMBERS ARE--****TRADOC SYSTEMS TRAINING OFFICER:**

A principal counterpart to the TRASSO is the TRADOC Systems Training Officer. He is designated as the HQ TRADOC POC for training subsystem development. He is responsible for ensuring that all facets of training for the life cycle of the new system have been considered and best approach, given tradeoffs in cost and effectiveness, has been adopted. He represents HQ TRADOC as the trainer to interface with the other members of the materiel acquisition team.



**DA LOGISTICS SUPPORT OFFICER (DALSO):**

The DALSO is an individual in the Office of the Deputy Chief of Staff for Logistics representing the ILS interests of the materiel developer and combat developer on the DA Staff. He is usually a major, lieutenant colonel, or civilian equivalent. The DALSO monitors new or product improved materiel acquisitions to ensure all elements of the ILS, as outlined in AR 700-127, are satisfactorily scheduled and completed. The DALSO is also responsible for all phases of logistic support for existing materiel systems in the force structure.

**PERSONNEL SYSTEM STAFF OFFICER (PERSSO):**

The PERSSO is the focal point in the Office of the Deputy Chief of Staff for Personnel for all manpower, personnel, and training issues associated with changing force structure resulting from new systems development and fielding, new organizations, changing doctrine, and revised authorization documents.

**THREAT INTEGRATION STAFF OFFICER (TISO)**

The TISO is the HQDA focal point in the Office of the Deputy Chief of Staff for Intelligence for all matters concerning threat support to Major and DAP systems.

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## ARMY STREAMLINED ACQUISITION PROCESS

ASAP is a combination of common sense measures to achieve the "surest and shortest" path for low risk developmental programs while eliminating the need for case-by-case exceptions to the traditional acquisition process. Even though not all ASAP features can be applied to every candidate program, and additional tailoring will be possible for some programs, the ASAP approach will be a primary consideration in the AS to assure that development and production are low risk and future capability needs can be achieved through P3I. ASAP emphasizes NDI as preferred acquisition approaches. ASAP "deviations" from the traditional process focus on up-front planning and flexibility in the formulation of a developmental program and result in overall shortening of the process, without loss of visibility or safeguards important to decisionmaking. The acquisition process comparison chart on the next page shows the relationships of the various phases and key milestones of ASAP and traditional DOD models.

## NOTE

Exceptions to ASAP must be justified, approved, and documented in the acquisition strategy (AS). Ongoing programs must be brought as close to the streamlined concept as possible within the bounds of good business sense.

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The AS outlined in the JMSNS or prepared as a companion to the O&O Plan will provide the decision authority with the requisite information to approve an ASAP approach.

The principal features of ASAP include:

1. Requirements structured for pursuit of companion "now" and "later" capabilities or parameters which foster low risk development for the near term with commensurate visibility and priority for parallel growth capability under the P3I concept of chapter 16.
2. Early focus on technology on mission area needs, and maturation of technology at component level. This is accomplished through a Technology Integration Steering Committee (TISC), which pairs technological opportunities with emerging requirements.

## ARMY STREAMLINED ACQUISITION PROCESS

3. Combination of appropriate elements of Concept Exploration and Demonstration-Validation Phases into a scaled-down Proof of Principle approach, featuring user experimentation/troop demonstration of brassboard systems, components or surrogates to prove out both the technical approach and operational concept before proceeding to full-scale development.

## NOTE

There is no requirement to proceed in "lockstep sequence" from Advanced Technology Development (non-system), to Advanced Development (system related), to Engineering Development. Under the ASAP concept, the objective is to proceed directly from Advanced Technology Development to Engineering Development; Advanced Development should be employed only on an exception basis.

4. Solid proveout of production -- including hard-tooled prototypes whenever possible -- along with manpower and personnel integration (MANPRINT) and ILS, prior to entry into Production-Deployment Phase.

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5. Integrated TT/UT test approach, MEP, wider sharing of test data via a common test data base, and continuous evaluation throughout the life cycle.

6. Minor reorientation of formal milestones:

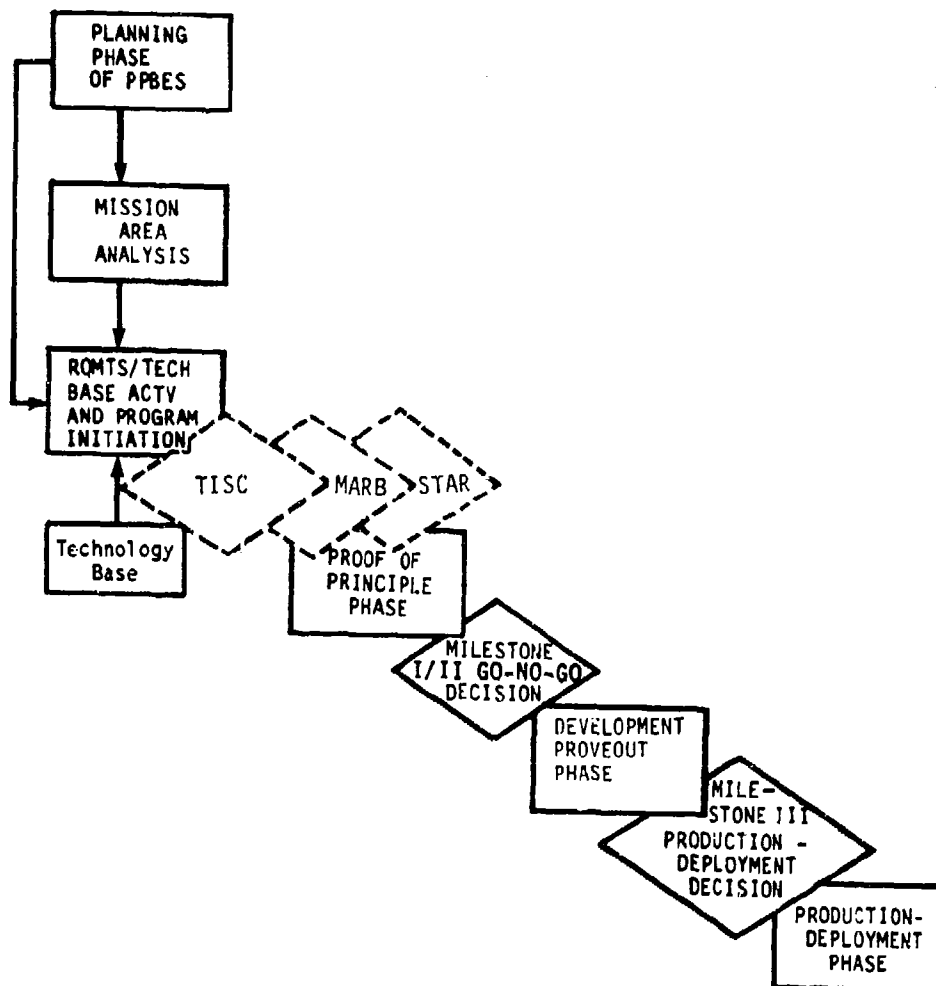
a. Program initiation via O&O Plan or JMSNS approval.

b. ASAP acquisition strategy approved by the program decision authority, and accompanied by a coordinated TEMP, prior to entry into Proof of Principle.

c. Entry into Proof of Principle based on: TISC findings, Materiel Acquisition Review Board approval of required PMD; appropriate Star Review to verify basic program direction and course of action.

d. Collapsed Milestone I/II (for simplicity, referred to as Milestone II) for entry into full scale development/proveout, constituting a "go/no go" commitment to the program.

e. Milestone III for entry into Production-Deployment Phase.



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For purposes of this overview, a simplified conceptual chart is provided below to show the interrelationships of the various phases and key milestones. On the following pages, the process is explained in terms of this chart, describing specific phases and milestones, and identifying the key supporting documents. The chart on the next page summarizes the review and decision procedures for each program type.

**MISSION AREA ANALYSIS**

1. A need for a development or acquisition program is supported by DOD and Army strategic planning and ongoing Requirements/Technology Base Activities. Mission Area Analyses (MAA) continually assess the capability of a force to perform within a particular mission area. AMC maintains a strong technology base to anticipate correcting deficiencies and to increase capabilities. MAA and the technology base are mutually supportive. Research and development in the technology base is guided by the TRADOC Battlefield Development Plan (BDP), the DA Long-Range Research, Development and Acquisition Plan (LRRDAP), and the AMC/TRADOC LRRDAP/MAMP (chapter 2).

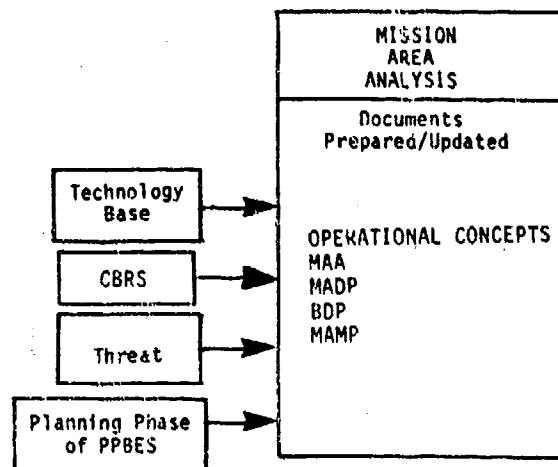
2. The DA LRRDAP, TRADOC MAA, and AMC/TRADOC LRRDAP/MAMP processes combine to provide a road map of how to get to the Army of the future. They provide a means to consider future implications of current decisions and a way to couple these actions with the Planning, Programing, Budgeting, and Execution System for resource allocation.

3. Mission Area Analysis synthesizes information gained from many individual studies and analyses into a single, internally consistent framework. To facilitate the detailed analyses of the Army's ability to execute its wartime missions, the umbrella concept has been divided into 13 TRADOC mission areas. Though not a mission area, the Combined Arms MAA (CAMAA) is conducted as the baseline for the 13 individual MAAs and provides the synergistic affect of the total force. (HQDA uses seven mission areas for funding. See chart on page 2.3.)

4. These 13 mission areas serve as the basis for measuring the capabilities of the force programed in the current Program Objective Memorandum (POM) to fight a successful battle against a projected threat. Each mission area is assigned to a TRADOC center/school for analyses and the prioritization of resulting deficiencies in the MADP. Final TRADOC prioritization of all major deficiencies across all mission areas is contained in the Battlefield Development Plan (BDP).

5. The Mission Area Development Plan and the BDP are the primary bases for the O&O Plan and JMSNS, as appropriate, which is prepared by the TRADOC proponent school, in coordination with the other members of the Acquisition Team.

## MISSION AREA ANALYSIS



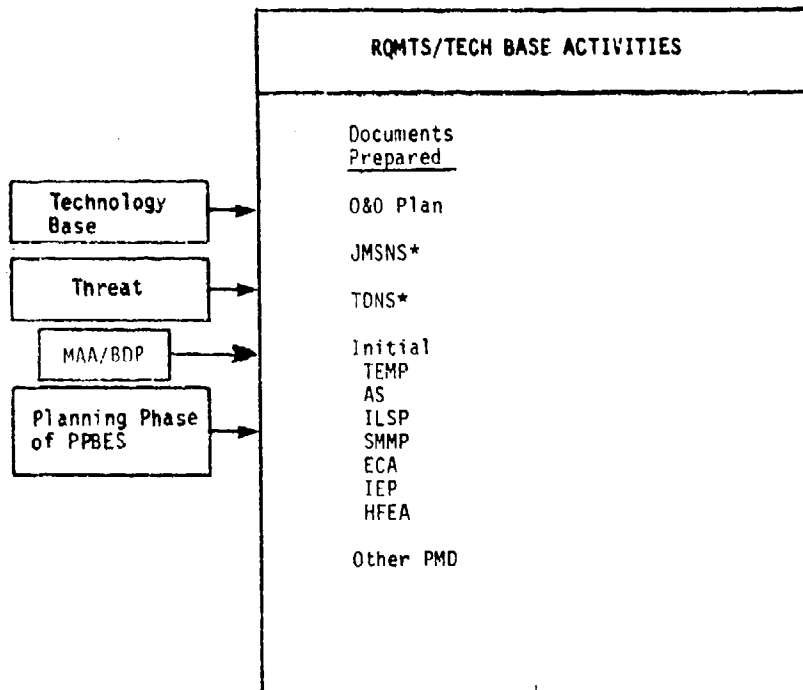
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## REQUIREMENTS/TECHNOLOGY BASE ACTIVITIES

1. The Technology Integration Steering Committee (TISC) will evaluate the match of selected technologies with Army thrusts and emerging mission needs and, if appropriate, trigger the preparation of an O&O Plan, JMSNS, or TDNS, as appropriate, by the TRADOC proponent.
2. If at any time during the development of an O&O Plan, estimates indicate that the proposed program will require in excess of \$200 million RDTE or \$1 billion in procurement (FY80 dollars), the TRADOC proponent will initiate development of a Justification for Major System New Start (JMSNS) (chapter 3).
3. The evaluations of current deficiencies include MANPRINT issues to influence design of a new or modified system early in the acquisition process. A System MANPRINT Management Plan (SMMP) is initiated prior to a program initiation when a deficiency requiring a materiel solution is identified. An Early Comparability Analysis (ECA) performed during this phase evaluates key facets of the soldier-machine interface of existing (predecessor) systems (chapter 11).
4. Technical and resource requirements for proposed systems are established through pertinent studies and the development and evaluation of experimental concepts, and Early User Test and Experimentation (EUTE). During this phase, critical technical, training, logistics, operational, MANPRINT, reliability, cost of production, electric power, and environmental control issues are identified for resolution to minimize future development risks. Investigations must also analyze support equipment and training devices of current systems, develop requirements for new support equipment and training devices, develop alternative operational and support concepts, and evaluate MANPRINT, RSI concerns, and logistic support resource implications of each alternative. Consideration of threat is particularly critical during these activities (see appendix D).
5. The AMC market surveillance activities are conducted during this phase. Primary consideration is given to currently available technology as developed by Army laboratories, other Services, allies, universities, and U.S. industry. This surveillance will initially identify the potential for a nondevelopmental item (NDI) solution.
6. During this period, a number of documents are initiated by AMC and TRADOC, or other participating agencies, to record the effort and form the basis for entry into the Proof of Principle Phase. These documents include -- an Acquisition Strategy (AS) (chapter 7): an



## REQUIREMENTS/ TECHNOLOGY BASE ACTIVITIES



\* If required

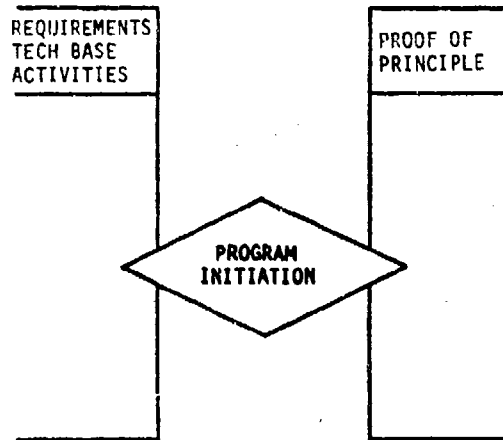
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Integrated Logistic Support Plan (ILSP) (chapter 12); a Test and Evaluation Master Plan (TEMP) (chapter 13), International Armament Cooperative Opportunities Plan (appendix K), an Individual and Collective Training Plan (ICTP), Transportability Engineering Analysis (TEA), Human Factors Engineering Analysis (HFEA), System Safety Assessment (SSA), and all others tailored to fit the program.

7. Initial inputs to the Program Management Control System (PMCS) (chapter 19) are required if the program has been designated as a DOD major program (ODCSRDA).

8. Requirements/Technology Base Activities are supported by the 6.1 research and 6.2 exploratory development funding within the research, development, test, and evaluation (RDTE) appropriation. In some cases nonsystem advanced development (6.3) RDTE funding may also be used.

## PROGRAM INITIATION



Supporting  
Requirements  
Documents

O&O Plan  
JMSNS \*

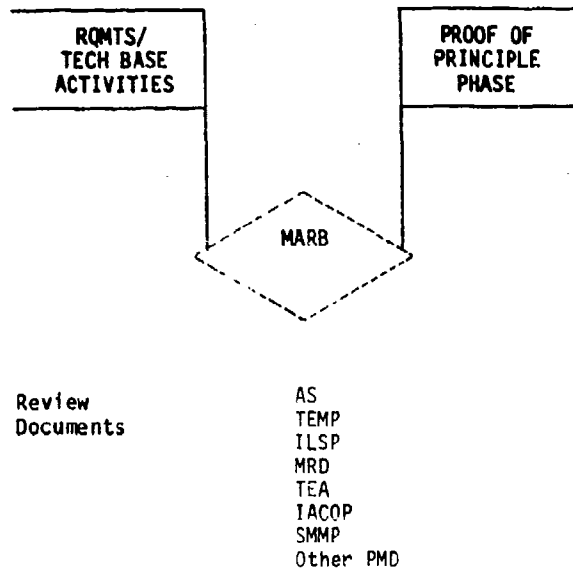
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1. All O&O Plans are approved by Commander, TRADOC. Approval of these O&O Plans constitutes program initiation for non-major programs. Approved O&O Plans are forwarded to HQDA. The Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS) circulates the O&O Plans to allow the AAE to designate programs as DAPs. Unless so designated, a program is managed by IPRs.

2. If a JMSNS is required, it must be submitted by HQDA to the Secretary of Defense as part of the Army's POM. The Secretary of Defense will provide appropriate program guidance in the Program Decision Memorandum (PDM). This action provides official sanction for a new program start and authorizes the Army, when funds are available, to initiate the next acquisition phase.

## ENTRY TO PROOF OF PRINCIPLE



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3. A Materiel Acquisition Review Board (MARB) will be convened to review and approve the decision review documents and provide a recommendation to the AMC and TRADOC decision authorities regarding entry into the Proof of Principle Phase (chapter 15).

## PROOF OF PRINCIPLE PHASE

1. AMC, in coordination with TRADOC, conducts the Proof of Principle Phase. This phase consists of steps necessary to verify preliminary design and engineering; accomplish necessary planning; analyze tradeoff proposals; resolve or minimize logistics impacts, MANPRINT, and reliability problems identified during the Requirements/Technology Base Activities Phase; prepare a detailed requirements document; and prove out the technology and components prior to the formal commitment to prove out the concept.

2. Once the O&O Plan and JMSNS are approved for a DOD major or DAP system ODCSOPS may establish a Special Task Force (STF) or request HQ TRADOC to set up a Special Study Group (SSG) to conduct the effort leading to completion of the CFP. An STF or SSG is normally formed when unusual expertise over a short time is needed, analytical techniques are evolving dynamically, alternatives involve other Services, and/or there is a major resource impact. In addition, the joint TRADOC/AMC TISC will direct required technology maturation actions. The TISC, in this instance, will determine when the selected technologies are sufficiently mature to pursue a MARB decision to enter Proof of Principle.

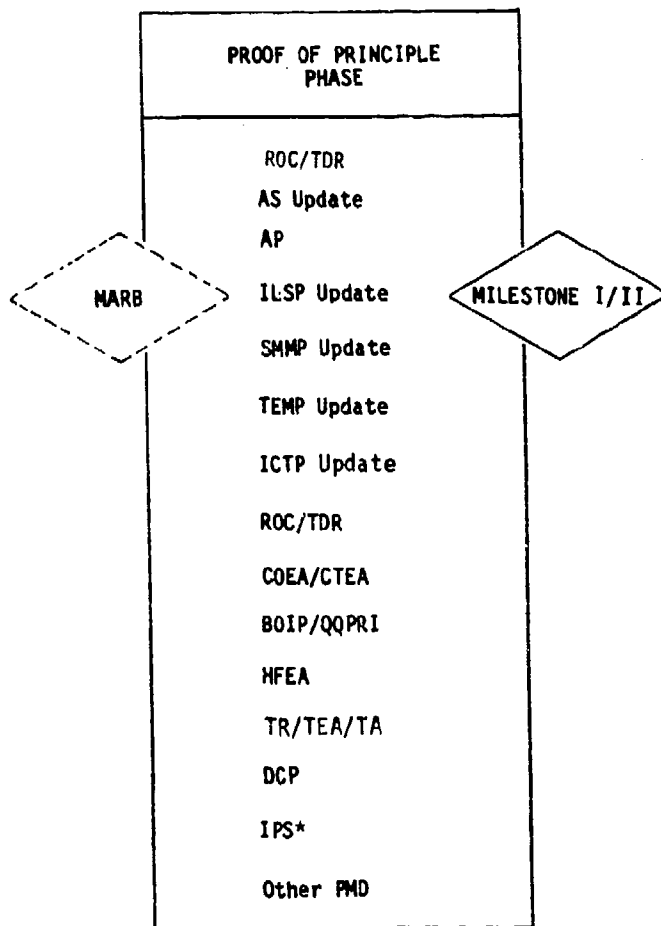
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3. In exploring a materiel solution, existing fielded equipment is reviewed for potential enhancements through materiel improvements. Materiel can be improved by reconfiguring a type classified item that is in production via a Class I engineering change proposal (ECP); reconfiguring a type-classified fielded item via a product improvement proposal (PIP); pursuing a nondevelopmental item (NDI) procurement strategy, or any combination of the above. During this phase, AMC conducts a formal detailed market investigation to determine if these types of acquisition alternatives are viable or if a developmental approach must be pursued. (See chapter 17 for market analysis process.

4. If during the Proof of Principle Phase activities, it becomes evident that an NDI solution will meet the materiel need, then the decision review Milestone I/II will become the production decision in that development proveout activities will not be conducted or will be minimized (chapter 17).

5. AMC will develop the BOIP Feeder Data and QQPRI early in this phase. They will be forwarded as a package to TRADOC for development (chapter 14). HQDA (ODCSOPS) approval is required prior to Milestone I/II.

## PROOF OF PRINCIPLE PHASE



TT/UT  
Market Investigation

\*If required

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## PROOF OF PRINCIPLE PHASE Cont'd

6. Concepts and components are demonstrated employing brassboard prototypes or surrogate components or systems. Evaluations are performed continuously employing a common and shared database (chapter 13). AMC and TRADOC evaluate the technology by placing a brassboard prototype system in the hands of user troops. The system is employed in accordance with the O&O Plan developed by TRADOC to prove out the maturity of the technology, the operational concept, and soldier acceptability. This demonstration will be conducted in as realistic a threat environment as practicable. A Safety Assessment Report (SAR) must be prepared by the developer prior to any testing. It is also used as supporting documentation to obtain a Safety Release prior to troop testing.

7. The Concept Formulation Package is developed to verify the cost and operational effectiveness of the selected acquisition alternatives.

8. Program management documents are prepared or updated as required to support Milestone I/II decision (chapter 9).

9. When the Proof of Principle efforts have progressed sufficiently the TRADOC proponent and the AMC lead MSC may agree that the materiel system under development should enter Development Proveout. At this time, the TRADOC proponent, in coordination with the MSC, prepared a ROC. A ROC for DAP and DOD major programs are approved by HQDA (ODCSOPS). ROCs for all other programs are approved jointly by TRADOC and AMC.

10. The Proof of Principle Phase is supported by the 6.3, advanced development, RDTE funding category.

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## MILESTONE I/II

1. After approval of the ROC and BOIP/QQPRI package, AMC in coordination with TRADOC, prepares a Decision Coordinating Paper (DCP) (chapter 15) and, if required by the decision authority, an Integrated Program Summary (IPS) (chapter 15) to support Milestone Decision Review I/II (MDR I/II).

2. At MDR I/II a firm "Go-No Go" decision is made to proceed to the next phase, the Development Proveout Phase (if a development option is the selected acquisition strategy).

3. Required documentation for this review consists of, as a minimum, the updated AS as part of the DCP, IPS (if requested by the decision authority), requirements document (ROC, TDR, etc.), test reports and Independent Evaluation Reports, TEMP, COEA/AA, Transportation Approval, HFEA, and an updated ILSP. These documents are used in the Materiel Acquisition Decision Process (MADP) Reviews (chapter 15).

4. For IPR programs, the IPR is conducted by the AMC and TRADOC materiel developer. Unless stipulated otherwise, the IPR decision authority is delegated to the AMC MSC and TRADOC Proponent. The IPR reviews the program. If concurrence is reached, the IPR recommendation is forwarded to the decision authorities who document their decision in a System Acquisition Decision Memorandum (SADM) based on the IPR recommendation. If the IPR cannot reach agreement and intervening command levels cannot resolve the issue, the minutes are forwarded to HQDA (DCSRDA) for resolution and issuance of a SADM.

5. For DAPs, decision review is accomplished by the ASARC. Based on the ASARC's recommendations, the AAE issues a SADM.

6. For DOD major programs, documentation is submitted first to the ASARC and then to the JRMB. JRMB recommendations are submitted to the SECDEF who issues a Secretary of Defense Decision Memorandum (SDDM).

7. Once the SADM or SDDM has been issued constituting approval to enter the next phase, it is distributed by ODCSRDA.

8. Initial inputs to PMCS are required after the AAE designates a program a DOD major or DAP program. PMCS inputs will continue.



# THE ARMY MATERIEL ACQUISITION PROCESS

1

## MILESTONE I/II

Milestone  
Review  
Groups

JRMB  
ASARC  
IPR

PROOF OF  
PRINCIPLE  
PHASE

DEVELOPMENT  
PROVEOUT  
PHASE

MILESTONE I/II

Milestone  
Review  
Documents

DCP  
IPS\*  
TEMP  
COEA/AA  
TR/TEA/TA  
ILSP  
IER  
IACOP

Supporting  
Requirements  
Documents

ROC/TDR

\* If Required

1.29

## DEVELOPMENT PROVEOUT PHASE

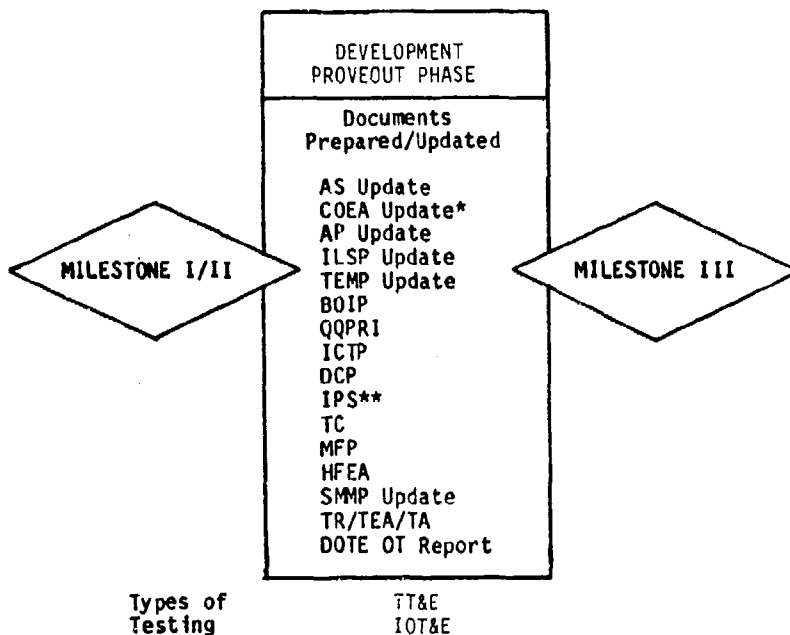
1. Based on direction provided by the SADM or SDDM, AMC and TRADOC, conduct the Development Proveout Phase. During this phase, the system, with all items necessary for its support including training devices and computer resources, is fully developed, engineered, fabricated, and tested/evaluated. Non-materiel aspects required to field an integrated system are developed, refined, and finalized.
2. An IPR may be employed to approve initiation of procurement-funded portions of this phase. These activities include Initial Production Facilitization (IPF), procurement of Long Lead Time (LLT) items, production of hard-tooled prototypes, Pre-production Testing (PPT), and a Production Readiness Review (PRR). When an IPF is required, its timely provision must be assured by inclusion of substantial funding for Producibility Engineering and Planning (PEP) Manufacturing Methods and Technology (MMT).
3. This phase is supported by the 6.4 engineering development category of RDTE funding and Procurement Appropriation (PA) funding.
4. Documentation during this phase is similar to that prepared during the Proof of Principle Phase. The AS, AP, ILSP, TEMP, ICTP, SMMP, and other elements of the PMD are updated. TT and UT, including dedicated OT, are conducted. Inputs into PMCS continue. In addition, the BOIP and QQPRI are finalized. During this phase, AMC, in coordination with TRADOC, prepares the Type Classification (TC) documentation (chapter 18). AMC, in conjunction with the gaining command, TRADOC, and the logistician, prepares the initial Materiel Fielding Plan (MFP) (chapter 12). The HFEA is updated and appropriate actions are taken (chapter 11). The TR/TEA is updated and Transportability Approval is obtained from MTMC (chapter 12). AMC also prepares the Milestone III review documentation, i.e., a DCP and, if required by the decision authority, an IPS.
5. Whenever possible, within risk and affordability constraints, this phase will include preproduction testing (PPT) on limited (hard-tooled) production prototypes to provide OT results prior to Milestone III and approval of TC-STD. OTEA (for major programs) and TRADOC (for all others) will submit an OT&E report to HQDA DCSRDA for forwarding to the OSD, Director, Operational Test and Evaluation (DOTE) at least 45 days prior to the Milestone III review. The DOTE independently assesses the adequacy of testing and the demonstrated operational effectiveness and suitability of DOD major and other designated systems and provides a DOTE OT report to SECDEF and the Congress.

1.30

# THE ARMY MATERIEL ACQUISITION PROCESS

1

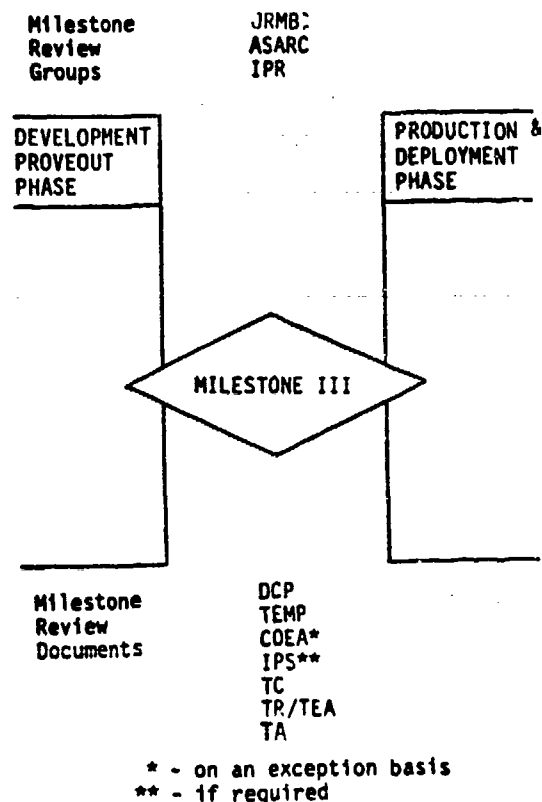
## DEVELOPMENT PROVEOUT PHASE



\* - on an exception basis  
\*\* - if required

1.31

## MILESTONE III

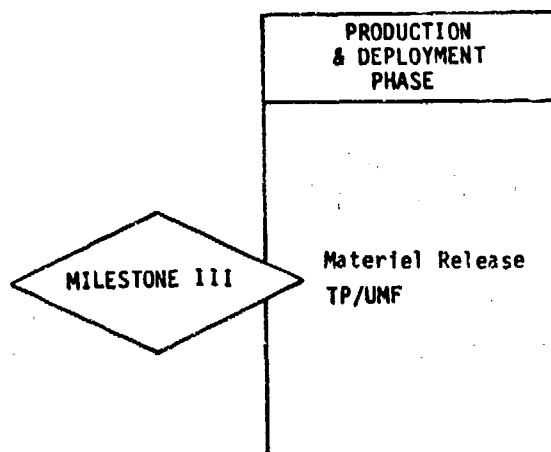


1.32

1. The second formal milestone decision point is Milestone Decision Review (MDR) III, the production decision. MDR III processes and procedures are basically the same as those for MDR I/II. This includes approval for subsequent deployment. Normally the decision authority delegates the Milestone III decision to the lowest level in the organization where there is a comprehensive view of the program and if there are no breaches of funding thresholds that would change the program category.

2. Documentation to support Milestone III consists of the DCP, IPS (if requested by the decision authority), TEMP, COEA, TC documentation, and the Transportability Approval.

## PRODUCTION AND DEPLOYMENT PHASE



Types of  
Testing

PT  
PQT  
FOTE

1.33

1. During this phase, operational units are trained, equipment is procured and distributed, and logistic support provided. Also, production testing and evaluation are accomplished. Product improvements that have been pre-planned are applied to the equipment as required. This phase is supported primarily by procurement funds.

2. The Army has a materiel release process to assure that materiel released to the field is suitable in terms of safety and health, human factors engineering, performance, reliability, quality, environmental factors, and availability and adequacy of logistic support including test measurement and diagnostic equipment and qualified operator and maintenance personnel. There are three types of releases:

a. Full Release. Issued when materiel has been tested and evaluated and meets all established requirements and the user MACOM concurs with the final Materiel Fielding Plan.

## PRODUCTION-DEPLOYMENT PHASE Cont'd

b. Conditional Release. Issued when one or more of the criteria for full release have not been met, an urgent need exists for the materiel, and interim means of support, controls, or hardware modifications are available and acceptable to the user MACOM. Conditional releases are restricted to specific quantity, location, and application.

c. Training Release. Used to release materiel for training only. Materiel released may include prototypes or test items, items manufactured under conditions other than normal production, and items which are incomplete and/or have not met one or more of the conditions for full release. Critical issues which limit use of the item must be identified to the user.

### 3. The following procedures apply:

a. Materiel Release Review Board (MRRB). MSC Commanders and PMs reporting directly to HQ AMC will establish MRRBs to verify that conditions for release have been met.

b. Full and training releases. Releases for DOD major and DAP systems require approval by Commander, AMC. Releases for IPR programs require approval by the MSC Commander or direct-reporting PM.

c. Conditional releases. Releases for DOD major and DAP systems require approval by the VCSA. Releases for IPR programs require approval by the Commander, AMC. Get-well plans accompanying conditional release requests will address each unsatisfied requirement that prevents full release.

4. AMC is currently fielding selected systems and all systems in FY87 and beyond under the Total Package/Unit Materiel Fielding (TP/UMF) concept. TP/UMF minimizes the workload of the gaining unit by gathering the end item and all required support into a single package which is identified, assembled, funded, and deprocessed by the materiel developer (chapter 12).

## TRADITIONAL LIFE CYCLE MODEL

If the decision authority determines that the traditional life cycle model must be followed, separate Milestones I and II may be required. The process and procedures for preparing for these separate milestones is described in chapters 3-4 of AR 70-1.

## **Chapter 2**

# **LONG-RANGE RDA PLANNING**

## Chapter Guide

The planning phase examines and analyzes the role and posture of the United States and the DOD in the world environment with specific emphasis on Presidential policies. This examination involves the preparation of the Joint Strategic Planning Document (JSPD) by the Joint Chiefs of Staff (JCS). The JSPD advises the Secretary of Defense (SECDEF) on military strategy and force levels for attaining national military objectives and is issued in the beginning of September. Another document influencing force planning positions is the Joint Intelligence Estimate for Planning (JIEP). The JIEP is prepared by the Defense Intelligence Agency (DIA) and published in mid-March. It focuses on short- and mid-range periods, analyzing the external and internal threats to countries of significance to the United States. Based on the above guidance and inputs from the Defense Resource Board (DRB), the SECDEF issues the Defense Guidance (DG) in late January, constituting an authoritative statement on centralized direction for defense planning and programing.

In May 1981, Chief of Staff Regulation (CSR) 11-15 was published to institutionalize the Army Long-Range Planning System. The Army Long-Range Planning System provides a structured and systematic process so that near- and mid-term planning and programing actions will be made in consonance with long-term goals and objectives.

2.1

The Army's Planning Phase is initiated with the publication of the Army Strategic Appraisal (ASA) in mid-November. Published by the Army War College, it portrays mid-range trends and addresses force planning issues 3 to 10 years in the future. The Army examines intermediate objectives, policy, and strategy to determine force objectives attainable within expected availability of dollars and manpower. This process, called Macro Analysis, identifies force alternatives for presentation to and decision by the Chief of Staff Army (CSA) and Secretary of the Army (SA). The selected alternative establishes an objective force that becomes the subject of The Army Plan (TAP) published in December each year. The Army publishes the Long-Range Research, Development, and Acquisition Plan (DA LRRDAP) in the following January.



## Chapter Guide

The DA LRRDAP displays R&D and procurement programs that support resolution of battlefield deficiencies by Mission Area Analyses (MAAs) as summarized in the Battlefield Development Plan (BDP). The purpose of the LRRDAP is to-- (1) prioritize programs/increments in the Program Objective Memorandum (POM) years, and (2) project program profiles in the Extended Planning Annex (EPA) years. The plan covers 15 years and provides guidance from Army leadership prior to program formulation. AMC and TRADOC provide a joint recommendation to the DA LRRDAP, using the AMC/TRADOC Mission Area Materiel Plans (MAMPs) as a source for constructing the LRRDAP input.

The AMC/TRADOC MAMPs are based on the DA LRRDAP, threat analyses, and on TRADOC's prioritization of the Army battlefield deficiencies reflected in the TRADOC BDP. The MAMPs are developed through a fully integrated multiappropriation process, jointly established by the materiel developer (AMC) and the combat developer (TRADOC). This process systematically addresses the user's deficiencies and proposes system strategies that will provide acceptable materiel solutions in a timely manner. The objectives of this process are four-fold: (1) to focus AMC's RDA Program on solving critical battlefield deficiencies; (2) to address user needs in an integrated planning framework; (3) to address all resources available, placing those resources in programs that provide the highest payoff; and (4) to articulate an investment strategy which is sellable to DA, DOD, and Congress. Thus, MAMP is AMC's baseline RDA planning document.

Through this process, the focus on the RDA planning and review is transferred from an MSC/commodity basis to a mission area basis. The MAMPs are defined and analyzed in terms of the 13 TRADOC mission areas, plus a special interest area, training. These mission areas, although not exactly duplicating the DOD mission areas, in all cases, are consistent with them. (The chart on page 2.6 identifies the relationships among DA mission areas, TRADOC mission areas, and the AMC activities responsible for related MAMP preparation.) Definitions of these mission areas are as follows:

Fire Support (FS): Addresses those efforts directly related to the generation of indirect fire combat power. Included are programs for field artillery weapons, terminal homing munitions and missiles, communications and target acquisition means which may be considered integral to the field artillery system.

## Chapter Guide

Nuclear, Biological, and Chemical (NBC): Addresses those capabilities required to support combat efforts operating a nuclear (defense), bacteriological, or chemical environment and offensive chemical warfare.

Battlefield Nuclear Warfare (BNW): Addresses the ability of a force to wage tactical nuclear war when forward elements are in contact.

Close Combat, Light (CCL): Addresses those efforts directly related to the generation of direct combat power by light forces except air defense and long-range indirect firepower. Included are programs for light weapons, combat mobility and mortars, and anti-armor capability.

Aviation (AVN): Addresses the capability to communicate with and between tactical and strategic networks. Included is the capability to communicate in an enemy-induced Electronic Warfare (EW) environment.

Communications (COM): Addresses the capability to communicate with and between tactical units and between tactical and strategic networks. Included is the capability to communicate in an enemy-induced EW environment.

Command and Control (CC): Addresses those capabilities required to command and control tactical units. Includes tactical information systems and systems for controlling and releasing nuclear weapons.

Intelligence/Electronic Warfare (IEW): Addresses the capability to determine movement, character, disposition type, and intention of hostile units to support battlefield management and the acquisition of targets for combat actions. Includes surveillance in support of command and control and means to correlate, integrate, and fuse this information with other sensor systems into intelligence. Also includes the capability to detect, identify, locate, report, disrupt, deceive, and exploit hostile electromagnetic systems. Excludes target acquisition capabilities integral to a class of firepower means.

Air Defense (AD): Addresses those efforts directly related to the development of air defense. Includes communications and target acquisition means which may be considered integral to the air defense system.

## Chapter Guide

Close Combat, Heavy (CCH): Addresses those efforts directly related to the generation of direct combat power by heavy, mechanized means except air defense and long-range indirect firepower.

Combat Service Support (CSS): Addresses those efforts directly related to capabilities which provide land tactical commanders with supply and maintenance services and energy, medical, and personnel administration support. Includes transportation system capabilities which are controlled by the land tactical commander.

Engineering and Mine Warfare (EMW): Addresses those efforts related to combat engineer efforts and mine/countermine warfare, including artillery delivered mines and barrier systems. Covers engineering support in construction and road maintenance, bridging electrical power support, and mine-clearing.

## 2.4

Special Operations Forces (SOF): Addresses those efforts related to unconventional warfare, foreign internal defense, civil affairs, psychological operations, reconnaissance, and counter-terrorist operations.

Training (TNG): Addresses all non-system training devices and simulators. Systems training devices are managed in the mission area of the weapon systems.

There are two mission area managers (MAMs), the AMC MAM (AMAM) and the TRADOC MAM (TMAM). The AMAMs are normally dual-hatted MSC commanders at Major General grade levels. The TMAMs are also normally dual-hatted school commandants and/or center commanders at Major General grade. Exceptions are the AMAM for the Training Mission Area is the PM (Colonel), TRADE; and the TMAM is the Director (Colonel), Devices Management Directorate, US Army Training Support Center; and the TMAM for the CSS Mission Area is the Director (GM-15), Materiel Systems Directorate, U.S. Army Logistics Center.

# LONG-RANGE RDA PLANNING

## MISSION AREA MATERIEL PLAN

### MISSION AREA ALIGNMENT

DA MISSION AREA	TRADOC MISSION AREA	AMC LEAD COMMAND	TRADOC LEAD COMMAND
Close Combat	Close Combat, Light Close Combat, Heavy Special Operations Force (Partial)	AMCCOM TACOM TROSCOM	INF School Armor School JFK Special Warfare Center
Fire Support	Aviation (Partial) Fire Support Battlefield Nuclear Warfare (Partial)	AVSCOM AMCCOM AMCCOM	AVN School Field Artillery School CAC
Combat Support	Engineering & Mine Warfare Intelligence/Electronic Warfare Nuclear, Biological & Chemical Aviation (Partial) Battlefield Nuclear Warfare (Partial)	TROSCOM CECOM AMCCOM AVSCOM AMCCOM	ENG School INTEL School CHEM School AVN School CAC
Combat Service Support	Combat Service Support Aviation (Partial) Special Operations Forces (Partial)	TROSCOM AVSCOM TROSCOM	LOGC AVN School JFK Special Warfare Center
Command, Control, Communications and Computers (C4)	Command & Control  Communications Special Operations Forces (Partial)	CECOM  CECOM TROSCOM	CAC  Signal School JFK Special Warfare Center
Training	(No TRADOC Counterpart)	PM TRADE (Non-System Devices) MICOM	Army Training Support Center
Air Defense	Air Defense		Air Defense Artillery School

## Chapter Guide

Each AMAM is delegated the authority of the CG, AMC, as the budgeting, planning, and programming strategist of all systems associated with the mission areas assigned to him. The AMAM, with the assistance of the TMAM, formulates strategies of all systems, as well as families of systems within his mission area(s). The AMAM has the responsibility for conceptualizing the necessary materiel systems solutions to adequately solve each assigned deficiency within his mission area(s). These efforts are accomplished through the efforts and participation of the AMC/TRADOC communities of in-depth mission area(s) program/budget reviews. AMAMs are responsible for developing and publishing MAMPs annually in the first quarter of the fiscal year of program execution, subsequent to final budget adjustment. These plans reflect the joint AMAM/MSCTMAM optimal system strategy concepts that provide systematic guidelines, including timelines for the acquisition, improvements, fielding, and replacement, as well as description of next generation/notional systems in response to the user's deficiencies.

## 2.6

TMAMs support the development of the MAMPs and are responsible for evaluating the materiel programs/systems against the BDP deficiencies and for assigning contribution values (with the assistance of the AMAM) to the materiel programs/systems. The contribution values are reexamined and verified during a TRADOC-hosted, deficiency/materiel program linkage review. Once accepted, the contribution values are subjected to the TRADOC contribution assessment methodology, and an initial, integrated 1-N priority list of materiel programs/systems (consolidated at levels of effort--Program Development Increment Package (PDIP)) is generated.

The strawman 1-N list is transmitted to materiel/combat developers and users for review and comment. The TMAMs primarily focus on the prioritization; the AMAMs concentrate on program executability. Comments, issues, and recommended corrections are subsequently discussed during a series of iterative joint TRADOC/AMC reviews. These reviews culminate in a decision briefing to the CG, TRADOC/AMC, and a final TRADOC/AMC position on prioritization and funding. This decision is retransmitted to the AMAMs and TMAMs for implementation.

In summary, the MAMP process furnishes the data to feed the DA LRRDAP and conceptualizes the strategies for program/system/family acquisition. In turn, the finalized, approved DA LRRDAP is used to revise the funding streams/strategies in the MAMPs, thereby ensuring the final MAMPs are consistent with the next published POM.

## Chapter Guide

A compendium of all MAMPs, "Materiel for Winning," is published and released to private industry. This publication benefits the Army by providing information which will direct industry's R&D investment toward future Army needs. This should lead to the heightened competition among Government contractors and potential contractors which will, in turn, lead to reduced systems costs.

This process has proven to be a very valuable planning tool with several positive aspects:

It forces the correlation of materiel systems to user's needs that are expressed through battlefield materiel deficiencies. As previously stated, it quickly identifies systems with high payoff as well as those that provide little visible benefit. User deficiencies which are not adequately addressed will surface during this process.

It greatly increases the user/developer interface. TRADOC provides input into the formulation of AMC's RDA program at the proponent school level. The AMC laboratories benefit greatly from the TRADOC school/center representatives' broad-based knowledge of specific mission area support systems tactics and doctrine as well as their ability to provide an interpretation/explanation of the BDP deficiencies. At the same time, the user gains a much better understanding of the programs, especially in the technology base arena.

This process forces a working interface between AMC MSCs, development laboratories, and PMs. Just as it brings the entire mission area program under one cover, it also brings the entire AMC community with programs/interest in a specific mission area together in one room at the same time. This affords the opportunity for AMC personnel to expand their understanding of user requirements across the entire spectrum of a specific mission area. It also allows the AMC laboratories and PMs to get an insight into the technological developments being pursued in other AMC laboratories and allows the AMC system developers to evaluate the potential of those technology programs for contribution of the development or product improvement of their major systems.

## Chapter Guide

The process forces a linkup of all resources (program elements/Standard Study Numbers (SSNs) that are designated as contributing to the development of a specific mission area system, supported by the AMC system materiel developer and the TRADOC system combat developer, to closely scrutinize the AMC programs at the lowest level of effort and to cull out those that do not, in fact, make any contribution. It provides a basis for the elimination of duplication of effort.

The end product of the process is a common AMC/TRADOC focus for priorities and reprogramming decisions in budget formulation and budget execution, thereby planning for the optimal use of scarce resources. Finally, the process provides the database necessary to produce a coherent, marketable materiel plan.

## Chapter Guide

MAAs synthesize information gained from many individual studies and analyses into a single, internally consistent framework. MAAs translate elements of the overall battlefield concept into requirements for materiel development. Each mission area is assigned to a TRADOC center/school for analysis and the prioritization of identified deficiencies. Mission Area Development Plans (MADP) are based on MAAs and are prepared by TRADOC proponent schools/centers with the support of AMC. Necessary corrective actions, identified in MAAs, are general in nature. MADPs translate MAA corrective actions into specific projects with milestone schedules.

BDP consolidates results of individual MAAs into a capstone analysis. This document describes the battlefield environment forecast for the Army of the future, highlights the doctrine used as a foundation for analysis, and assesses the Army's capability to survive and win on the battlefield. The plan includes major packages of deficiencies that cut across mission area lines.

2.9

## Responsibilities

AM/TRADOC:	develop the MAMPs
TRADOC:	develop, in coordination with AMC, the MADPs
	develop MAAs and BDP

## Chapter Proponent Offices

AMC:	AMCDE-P and AMCRM
TRADOC:	ATCD-E



### References

The following documents provide guidance for the development of long-range planning documents:

DA:CSR 11-15  
Draft Mission Area Materiel Plan (MAMP) Handbook  
AR 70-1  
Planning, Programing, Budgeting, and Execution System  
(PPBES) Handbook  
The Army Plan (TAP)  
AMC Guidance  
AR 71-9  
Army Guidance  
AMC Strategic Long-Range Plan (SLRP)  
AR 381-11  
Soviet Battlefield Development Plan (SBDP)  
DARCOM-R 700-5  
Army Pamphlet 70-XX  
TRADOC-R 11-8

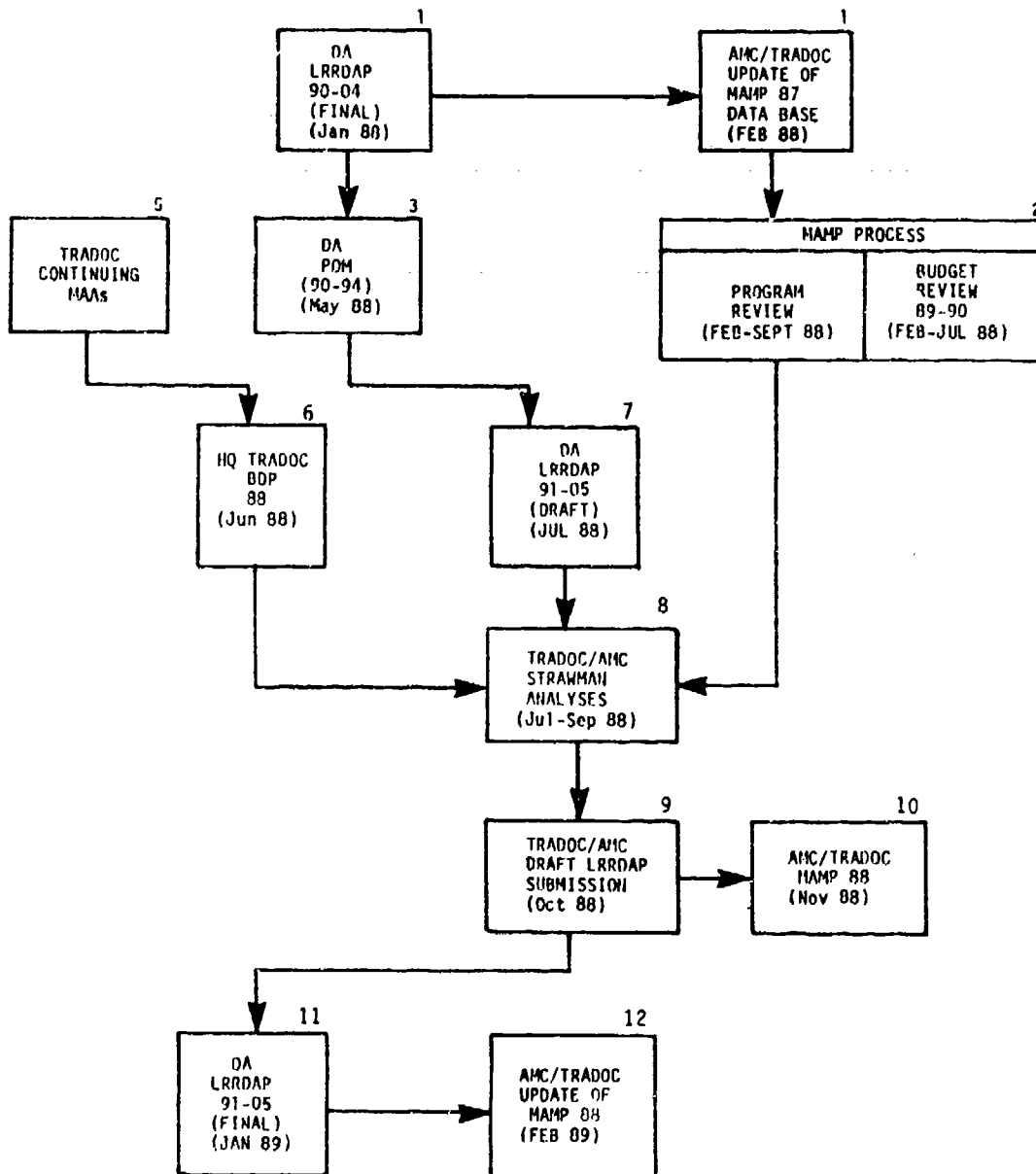
2.10

### Time Constraints

The LRRDAP/MAMP process follows a prescribed schedule as identified in the procedure below:

# LONG-RANGE RDA PLANNING

2



211

### Procedure

Detailed procedures for development, review, and approval of the LRRDAP/MAMP process are described on the following pages in the form of descriptive paragraphs on the left-hand page and a corresponding flow chart on the facing page. Timeframes identified within the blocks use as an example the DA 1990-2004 LRRDAP (final) as the starting point for the annual process. (This chart reflects procedures used for CY86.)

### NOTE

The schedule for PPBES is under consideration for major revision. This revision could significantly impact the future LRRDAP/MAMP process/procedure/schedule.

## 2.12

### Process Outline

1. In the example displayed, the final 1990-2004 LRRDAP published by HQDA is used by AMC and TRADOC to update the MAMP 87 database.
2. The updated MAMP database is utilized in two reviews. Funding for the budget year (89) plus one (90) is adjusted in the budget review. The program review develops data and analyses to support development of the LRRDAP for the following time period (1991-2005).
3. HQDA completes preparation of the 90-94 POM in May 88.

## Process Outline

4. The Deputy Chief of Staff, Intelligence (DCSI), AMC, provides the materiel/combat developers a comprehensive assessment of the Soviet threat enhancements as they relate to the TRADOC mission areas. The focus of this assessment is to identify specific Soviet threat enhancements which impact on the adequacy of current technological/developmental programs and indicate a need for additional thrusts in technology areas. DCSI publishes this assessment with copies concurrently to each MAM, AMSAA, HQ TRADOC, Integrating Centers, and Schools. AMC focus is on technology requirements, scheduling, and funding; TRADOC's focus is on doctrine, organization and training, requirements, and scheduling. TRADOC reviews the assessment to determine additional operational/doctrinal considerations. Using the DCSI guidance, AMSAA simultaneously updates their existing US counters to USSR Modernization Study. AMSAA then conducts an independent review and an analysis of the impact of the intelligence guidance upon the deficiency statements contained in the mission area fact sheets and the utility of materiel solutions. The AMSAA analysis results are provided to the MAMs/TRADOC for use/consideration during their strategy formulations. Continuing analysis and assessments are conducted by AMSAA in consonance with the development of and adjustments to TRADOC/AMC 1-N LRRDAP prioritization strawman.

5. TRADOC, with input from AMC, conducts continuing MAAs to determine deficiencies in the Army's capability, identify means of correction, and apply advanced technology to Army operations. These deficiencies are used by the TRADOC mission area proponents (TRADOC centers/schools) to develop MADPs.

6. HQ TRADOC develops the BDP based upon the deficiencies identified in the MAAs. The BDP gives the relative priority of all deficiencies and communicates the Army's critical deficiencies to HQDA and the development community (Apr 86).

7. The 90-94 POM provides input for HQDA development of a draft 1991-2005 LRRDAP (Jun 88) which is submitted to TRADOC and AMC for review.

8. TRADOC and AMC perform a series of reviews based upon previous MAMP and program prioritization efforts to develop strawman positions on the draft LRRDAP.

9. This culminates in TRADOC/AMC General Officer (four-star) review in September. TRADOC and AMC jointly submit their LRRDAP input to HQDA (DCSOPS/DCSRDA) in October.

2.13

## Process Outline

10. This joint input becomes baseline for preparation of the MAMP 88 in November.
11. DA issues the final 91-05 DA LRRDAP in Jan 89.
12. AMC and TRADOC update the MAMP 88 data base in February, and the cycle repeats.

### **Chapter 3**

**OPERATIONAL AND ORGANIZATIONAL PLAN (O&O PLAN)/  
JUSTIFICATION FOR MAJOR SYSTEM NEW START (JMSNS)**

## Chapter Guide

When it is determined through the Concept Based Requirements System (CBRS) process that the solution to a Mission Area Analysis (MAA) deficiency cannot be accomplished through a change in doctrine, training, or organizations, the fourth alternative must be pursued. This alternative is the acquisition of a materiel solution. Materiel solution acquisition alternatives will be developed in the following priority: improvement of existing systems (chapter 16); nondevelopmental items (NDI) (chapter 17); and new development. The development of a materiel solution must fully consider feedback to doctrine, training, and organizations. The programs to research, develop, and acquire materiel solutions are initiated by an Operational and Organizational Plan (O&O Plan) and for DOD major systems a Justification for Major System New Start (JMSNS).

An approved O&O Plan initiates the acquisition of all new materiel systems and is based on an approved operational concept. It is prepared by the TRADOC proponent in coordination with all players appropriate to the program. Normally, an O&O Plan will not be initiated until it appears that technology will support entry into Development Proveout within 2 years. It is the front-end agreement to initiate the materiel acquisition process as it provides decisionmakers with the minimum essential system specific information to complete the Proof of Principle Phase of the program. The O&O Plan will address the system(s) as an integral part of the affected organizations rather than as an isolated system. All O&O Plans are approved by Commander, TRADOC.

An O&O Plan may be written to initiate the Research, Development, and Acquisition (RDA) of a single materiel or a family of materiel solutions. The need is established and development is pursued under the family concept when it is advantageous to standardize equipment or major components of equipment. Standardizations will eliminate duplication in RDA and provide substantial benefits in operations, training, and supportability. For example, future combat vehicles may be based on standard chassis with common engines and drive trains. A second example is a standard tactical computer may be acquired for a wide variety of software applications. It should be noted that families normally span multiple mission/functional areas. O&O Plans for families of materiel will consist of a capstone O&O Plan and two or more system specific annexes. The capstone document will outline the commonalities of the family (the basic vehicles with standard components or standard tactical computer)

## Chapter Guide

and establish the baseline for all of its members (the vehicle variants or software packages). The title of the capstone document will contain the word "Family." System specific annexes to the capstone O&O Plan will be prepared for each member of the family to identify/define unique information, characteristics, and constraints. This information will not exceed the baseline or be contradictory to that contained in the capstone document. The lead TRADOC proponent will prepare the capstone document. The annexes may be prepared by any TRADOC proponent and should be attached to the capstone document as it is being staffed so the Joint Working Group (JWG) can develop a document as complete as possible. It is imperative, therefore, that the lead proponent seek early participation by the other proponents and the materiel developer (MATDEV). This will facilitate both rapidly obtaining consensus on the capstone document and preparation of the annexes as the authority to obligate funds is dependent on approval of the system specific annexes rather than the capstone document.

## 3.2

## NOTE

O&O Plans for families of materiel will not be used for or written in lieu of operational concepts.

Processing a capstone document and its accompanying system specific annexes will be according to the following time constraints and will not be delayed for a system specific annex being processed separately. Although it is desirable that all system specific annexes be staffed and approved with the capstone document, it is recognized that this may not always be possible or practical. System specific annexes being developed separately, and subsequent to the approved capstone document, will be processed accompanied by the approved capstone document and according to the same time constraints. Development and approval of system specific annexes will not precede development and approval of the capstone document.

If during the development of an O&O Plan (or after approval), it is determined that the anticipated cost to fulfill the need will exceed \$200 million in RDTE, \$1 billion in procurement, or the program is otherwise designated for DOD level decision review, a JMSNS will be written. Because a JMSNS is prepared to describe a mission need, it is a problem-oriented rather than solution-oriented document. The JMSNS is prepared by the TRADOC proponent in coordination with all players appropriate to the program. Once approved by TRADOC, JMSNS are forwarded to HQDA (DAMO-FDR)



### Chapter Guide

for processing and ultimate approval by the Secretary of Defense. All JMSNS must be fully coordinated (and funding priority included in the LRRDAP) prior to Program Objective Memorandum (POM) Lock since they are to be submitted to OSD with the POM in which funds for the budget year are requested. JMSNS for first-year new starts, as a minimum, must arrive at HQDA while the POM is being drafted (December for next year's POM).

An approved O&O Plan and JMSNS, when required, constitute a valid authorization to initiate the program. Both documents will be developed on the same objective schedule by the same organizations. HQDA (DAMO-FDR) will assign each a Catalogue of Approved Requirements Documents (CARDS) reference number after approval.

### Responsibilities

- TRADOC: - Conduct continuing Mission Area Analyses.  
- Prepare, coordinate, and approve O&O Plan.  
- Prepare, coordinate, and forward JMSNS for approval.  
- Prepare threat information.  
- Participate in AMC MARB review.  
- Chair Joint Working Group (JWG).  
- Chair Requirements Review Committee (RRC).  
- Prepare issues and criteria during development of the O&O Plan.  
- Distribute approved O&O Plans and JMSNS.
- AMC: - Provide review and comments as requested by TRADOC.  
- Assist in threat preparation.  
- Provide funding information.  
- Chair MARB review.  
- Provide the vice-chairman for and participate in JWG.

3.3

### Chapter Proponent Offices

TRADOC: ATCD-ET  
AMC: AMCDE-PQ

## References

The following documents direct or influence procedures for preparation, staffing, and approval of O&O Plans and JMSNS.

DOD: DODD 5000.1  
DODI 5000.2

DA: AR 1000-1  
AR 70-1  
AR 71-9  
AR 381-11

## TRADOC/AMC:

Letter of Instruction for Implementation of Industry Review  
of Materiel Requirements Documents (MRD), 26 Mar 86  
(appendix J).

PAM 70-11

AMC: AMC-R 70-5

3.4

## Time Constraints

The O&O Plan and JMSNS must be completed and approved to achieve program initiation. The JMSNS is particularly time constrained because of its relationship to the Army POM preparation schedule.

The objective timelines for developing an O&O Plan and JMSNS, and any changes to either document, are the same once the document is initiated and are depicted below. The numbers depict how many weeks have elapsed after the TRADOC proponent initiates a document and indicate when a specified action must be initiated or completed. Each action must be completed and available for follow-on action as specified below and as specified in the Process Outline.

<u>Elapsed Weeks</u>	<u>Action</u>
0	TRADOC proponent prepares first draft O&O Plan/JMSNS.
2	TRADOC proponent distributes first draft O&O Plan/JMSNS to: <ul style="list-style-type: none"> <li>- HQ TRADOC (ATCD-E)</li> <li>- TRADOC Schools</li> </ul>

### Time Constraints

- TRADOC Integrating Centers (CAC, LOGCEN, SSC, and SSC-NCR)
- HQ AMC (AMCDE-PA)
- AMC MSCs
- Primary and Other MACOM
- USASAC (AMSAC-MI/T)
- AMSAA (AMXSU-CR)
- Test and Evaluation Agencies
- HQDA (DAMO-FDR)
- Industry (See LOI-appendix J)
- MTMC-TEA
- LEA
- LABCOM (AMSLC-TP-PI)
- Academy of Health Sciences
- Army Environmental Hygiene Agency
- Medical R&D Command (SGRD-ZA)
- OTEA
- USAE TL (ETL-TD-C)
- USANCA (MONA-NU)
- Other Services
- ADEA
- Allies

On receipt

11

13

14

16

On receipt

20

22

26

26

Addressees review and prepare comments.

AMC MARB review of O&O Plan (JMSNS).

Addressees return comments to TRADOC proponent.

Proponent host JWG.

Proponent prepare final draft O&O Plan/JMSNS.

Proponent forward final draft concurrently through HQ AMC and TRADOC Integrating Centers to HQ TRADOC with a copy furnished to HQ TRADOC.

HQ TRADOC, HQ AMC, and Integrating Centers review draft.

HQ AMC and Integrating Centers forward final draft concurrence to HQ TRADOC.

TRADOC RRC review final draft.

TRASSO obtain in DCSCD and CG TRADOC approval.

TRASSO obtain CARDS reference number for approved O&O Plan from HQDA (DAMO-FDR) through ATCD-ET.

TRASSO forward JMSNS to HQDA (DAMO-FDR) for approval processing.

3.5

## Time Constraints

27

TRASSO distribute approved O&O Plan to, as a minimum, all who received initial draft. After SECDEF approval of JMSNS and receipt from HQDA, TRASSO distribute JMSNS to, as a minimum, all who received initial draft.

### Procedure

Detailed procedures for preparation, review, coordination, and approval of an O&O Plan or JMSNS are described on the following pages in the form of descriptive paragraphs on the left-hand page and corresponding flow charts on the facing page.

When appropriate, a "NOTE" is added at the end of a paragraph to highlight options to the action called for in the paragraph or to provide some other insight into the section described.

### Process Outline

1. When a deficiency in any Mission Area, which can only be resolved by a materiel solution, is documented in a MADP and it appears technology will support entry into Development Proveout within 2 years, an O&O Plan will be written. The TRADOC proponent writes the first draft to initiate the materiel acquisition process. O&O Plan format begins on page 3.12 with a corresponding checklist beginning on page 3.15.

3.7

### NOTES

A JMSNS will be initiated by the TRADOC proponent at any time prior to Milestone I/II when the funding analysis indicates the program will exceed OSD's resource thresholds of \$200M RDTE or \$18 procurement. When preliminary funding research in support of an O&O Plan indicates the program will breach the OSD thresholds, the documents may be developed simultaneously. HQ TRADOC and HQ AMC will coordinate in the preparation and review of all threat assessments. See appendix D and AR 381-11. JMSNS format is on page 3.21 with a corresponding checklist beginning on page 3.22.

## Process Outline

Initial evaluation issues and criteria must be developed and processed concurrently with the O&O Plan. O&O Plans and initial issues and criteria will be forwarded as enclosures one and two, respectively, to the O&O Plan transmittal letters. The transmittal letters will discuss the initial concept of the testing program. (See chapter 13 for specifics on issue and criteria development).

## 3.8

2. An O&O Plan and JMSNS will undergo formal worldwide staffing only once, the one-time formal staffing occurring with the first draft. The document will be a complete document. To accomplish this, the MSC will provide the TRADOC proponent with preliminary cost, RAM, and ILS data. If this data is not final, preliminary data will be acceptable, and final data will be provided at the JWG. The procedures will be as described by the following paragraphs. The TRADOC proponent will distribute the first draft document to HQ TRADOC (ATCD-E), HQ AMC (AMCDE-PA), TRADOC Integrating Centers [(CAC (ATZL-CAM), LOGCEN (ATLC-M), Soldier Support Center (SSC) (ATSG-DDM), and SSC-National Capitol Region (NCR) (ATZI-NMM)], other interested or affected TRADOC centers or schools, the proponent and other interested or affected AMC MSCs, the primary gaining MACOM, Military Traffic Management Command-Transportation Engineering Agency (MTMC-TEA), Logistics Evaluation Agency (LEA), the primary tester and evaluator, Nuclear and Chemical Agency (NCA), HQDA (DAMO-FDR), and other Services. In addition to comments or concurrence, other Services will be asked to identify any similar programs contemplated or in progress and the appropriate Joint Potential Indicator. A response is required from these addressees. They are requested to attend the JWG. The proponent will also forward a copy of the first draft to other MACOMs, HQDA (DASC, PERSO, DALSO), other testers and evaluators, industry (through the appropriate AMC Technical Industrial Liaison Office (TILO)), and ABCA countries (through HQ TRADOC: ATCD-Y). These addressees are requested to respond if they desire. At HQ TRADOC, the Systems Management Directorate (SMD, ATCD-E) will receive the first draft document, establish suspenses based on the time constraints, and forward it to the appropriate Combat Development (CD) hardware directorate for TRASSO assignment. The TRASSO will then staff the document with the HQ TRADOC Requirements Review Committee members and the allied liaison officers stationed at Ft. Monroe (via the disclosure office). The TRASSO will forward a consolidated HQ TRADOC response to the proponent. Whenever possible, the TRASSO will attend the JWG.

### Process Outline

#### NOTES

The AMC proponent MSC will convene and chair a Materiel Acquisition Review Board (MARB) to review, evaluate, and establish a coordinated MATDEV position on all O&O Plans. If a JMSNS is required, the MARB will be convened and chaired by HQ AMC. MARB review is required prior to the JWG. TRADOC will be invited to participate.

Should the TRASSO determine through staffing and review that the requirement is not valid or needs to be questioned, a non-concurrence is in order. A non-concurrence must be determined rapidly and early in the life-cycle of the requirements documentation. If there is a non-concurrence, it ideally should be surfaced prior to or at the JWG. It is the responsibility of the TRASSO to advise SMD of such action.

3.9

3. All attempts will be made to incorporate comments and resolve disputes prior to conclusion of the JWG, since the purpose of future staffing is to obtain formal signatory documentation of previous concurrence, rather than to conduct another review. Unresolved issues will be documented with the coordination annex for resolution by higher authority. The proponent is responsible for preparing the final draft document. The proponent commander/commandant will personally sign all letters of transmittal that forward the final draft document.

4. The proponent will forward the final draft concurrently through HQ AMC and the four TRADOC Integrating Centers for concurrence to HQ TRADOC with a copy furnished to HQ TRADOC. The TRASSO, in coordination with SMD, will arrange for the RRC to review the document after all through addressees have responded. Any changes to the final draft O&O Plan caused by RRC comments will be incorporated by the TRASSO.

## Process Outline

5. Following RRC review of the final draft document, the TRASSO will obtain DCSCD and CG, TRADOC, approval. The TRASSO will then obtain a CARDS reference number from HQDA (DAMO-FDR) through SMD (ATCD-ET) for the approved O&O Plan. The TRASSO will distribute the approved O&O Plan to all DOD agencies which participated in developing the document; ensure it is made available to industry (see appendix J), ABCA countries through ATCD-Y, and allied liaison officers stationed at Ft. Monroe (via the TRADOC disclosure office). At this point, HQDA will circulate the document within the ARSTAF and Secretariat for determination if the program will be selected to be a Designated Acquisition Program (DAP) when the program is other than a DOD major program. A sample letter distributing an approved document is on page A.8. After obtaining DCSCD and CG, TRADOC, approval the TRASSO will forward the JMSNS to HQDA for approval processing.

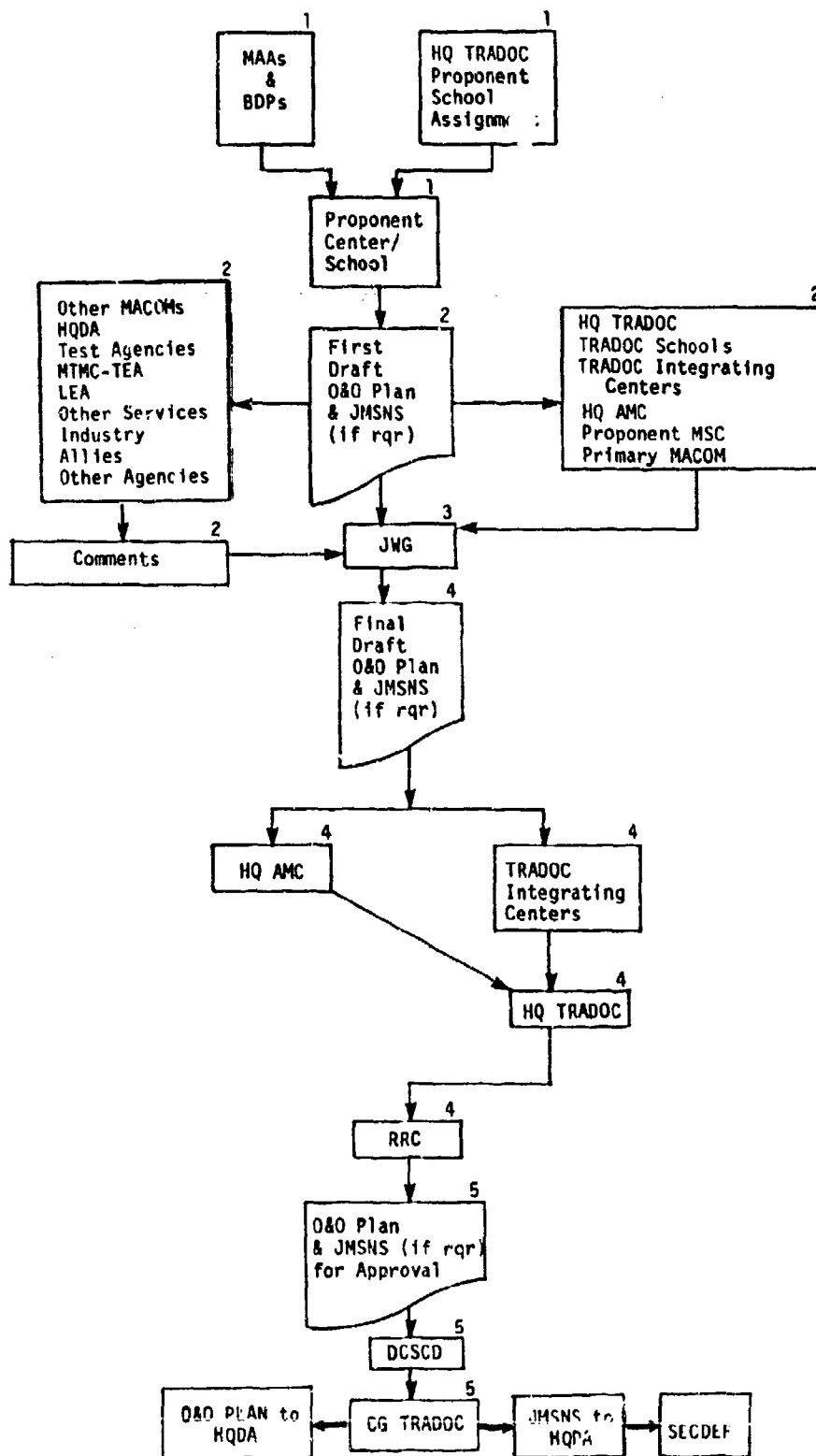
## 3.10

## NOTE

An approved O&O Plan is the basis for preparation of the Required Operational Capability (ROC), Basis of Issue Plan Feeder Data (BOIPFD), and Qualitative and Quantitative Personnel Requirements Information (QQPRI).



**Process Outline**



**3.11**

## Operational And Organizational Plan (O&amp;O PLAN) Format

Prepare O&O Plans in the format shown below. Basic document will not exceed 10 pages.

## 1. TITLE

- a. Descriptive program title.
- b. CARDS Reference Number: (Assigned by ODCSOPS after approval).

## 2. NEED

- a. Describe the need for a materiel capability to eliminate one or more operational deficiencies.
- b. State where in the MAA (or other study) the deficiency is identified. Describe the operational deficiency to be eliminated or the opportunity to be exploited.

## 3. THREAT

- a. Threat to be countered. Describe the threat capability, current and projected, the proposed system will be required to defeat on the battlefield. If it will not defeat a threat capability, then so state.
- b. System vulnerability. Describe the threat capability, current and projected, to destroy, neutralize, or degrade the operational effectiveness of the proposed system.

(Note: When the threat information, or the basis for it, is classified, this paragraph will identify the source for the information.)

## 4. OPERATIONAL CHARACTERISTICS

Describe in broad bands the main operational characteristics of the capability. (For example, a capability is needed to defeat enemy armor at "X-Y" kilometers, to lift a payload of "X-Y" thousand pounds, transport "X-Y" number of troops with combat gear for "A-B" kilometers, etc.)

## 5. OPERATIONAL PLAN

Describe in general terminology how, what, when, and where the system will be employed on the battlefield and how it will interface with other systems.

O&O Plan Format

6. ORGANIZATIONAL PLAN

Identify the type units that will employ and support the system and, when appropriate, the system(s) to be replaced.

7. SYSTEM CONSTRAINTS

Describe constraints which may limit an acceptable solution to the need, such as, mobility, transportability, logistics, training, MANPRINT, environmental, communications, directed energy survivability, etc.

8. STANDARDIZATION AND INTEROPERABILITY

a. Discuss other Services interest in the program identified during staffing. Identify similar programs contemplated by other Services or allied nations.

b. Describe standardization, interoperability, or commonality constraints that apply because of other Army, other Service, or allied nation missions, tasks, relationships, or systems.

9. FUNDING IMPLICATIONS

Provide gross estimates of: (a) total RDTE cost, (b) total procurement cost, (c) unit cost, and (d) life-cycle cost.

ANNEX A

Operational Mode Summary/Mission Profile (OMS/MP) Annex. List tasks and conditions for frequency and urgency viewed for system employment in military operations. The mission profile is logically derived from the operational and training concepts. It provides additional information for developing system operational characteristics.

ANNEX B

RATIONALE ANNEX. This provides an audit trail and full rationale for determining how each of the operational characteristics in paragraph IV of the basic document and systems constraints in paragraph VII of the basic document were derived. (This annex will be removed from the basic document after CG, TRADOC, approval. A copy will be retained by the TRADOC proponent.)

## O&amp;O Plan Format

## ANNEX C

COORDINATION ANNEX. List all agencies, to include those within TRADOC, with which coordination was affected. Full rationale for nonacceptance of comments, if any, must be provided. (This annex will be removed from the basic document after CG, TRADOC, approval. A copy will be retained by the TRADOC proponent.)

### O&O Plan Checklist

This checklist is provided for use by all involved in preparing, reviewing, and approving O&O Plans.

A. Policy on O&O Plan YES NO

1. Is the operational concept approved?  
(Note: Approved operational concepts are documented in the 525 series TRADOC Pamphlets.) \_\_\_ \_\_\_
2. Is the basic O&O Plan 10 pages or less? \_\_\_ \_\_\_
3. Will the program be ready to enter into Development Proveout within 2 years? \_\_\_ \_\_\_
4. Are initial evaluation issues and criteria included as enclosure 2 to the transmittal letter for the O&O Plan? \_\_\_ \_\_\_
5. Are the results of staffing the O&O Plan with industry contained as enclosure 3 to the transmittal letter for the final draft? \_\_\_ \_\_\_
6. Have HQ AMC and the TRADOC Integrating Centers concurred (for approval processing only)? \_\_\_ \_\_\_

B. Format and content for O&O Plan

1. TITLE

- a. Is there a descriptive program title? \_\_\_ \_\_\_
- b. After approval has a CARDS reference number been assigned? (Note: leave blank until CG, TRADOC, approval). \_\_\_ \_\_\_

2. NEED (NOTE 1)

- a. Is the need for a materiel capability simply and concisely described? \_\_\_ \_\_\_
- b. Was the need developed from a deficiency described in an MAA? \_\_\_ \_\_\_
- c. Were the MAA, MAA date, and MAA deficiency number(s) identified? \_\_\_ \_\_\_
- d. Was the operational deficiency to be eliminated described? \_\_\_ \_\_\_

3.15

## O&amp;O Plan Checklist

- e. Was the opportunity to be exploited  
(when applicable) described?      — —

## 3. THREAT (NOTE 1)

- a. Will the proposed system counter or defeat  
a threat?      — —
- b. Was this threat clearly described?      — —
- c. Was the threat capability to destroy,  
neutralize, or degrade the operational  
effectiveness of the system simply and  
concisely described?      — —
- d. Is the threat description specifically  
related to the needed capability?      — —
- e. Was the source for all classified threat  
information identified? (NOTE: Threat  
information, whenever possible, should be  
unclassified.)      — —

3.16

## 4. OPERATIONAL CHARACTERISTICS

- a. Is each characteristic essential to  
mission accomplishment?      — —
- b. Where the main (essential) operational  
characteristics described in broad bands?  
(NOTE: These operational characteristics  
will provide the basis for development of  
critical evaluation issues and criteria.)      — —
- c. Can each characteristic be evaluated  
during user experimentation and testing?      — —
- d. Do any of the characteristics in the  
system specific annexes exceed or contra-  
dict those in the capstone O&O Plan?      — —
- e. Is each characteristic supported in  
the rationale annex?

O&O Plan Checklist

5. OPERATIONAL PLAN

- a. Is the description of how, what, when, and where the system will be employed in general terminology? \_\_\_ \_\_\_  
(NOTE: This information will not be as detailed as that which is, or will be, documented in field manuals. It will provide the broad outline for development or update of field manuals.)
- b. Are the other systems that this system will interface with identified? \_\_\_ \_\_\_
- c. Is how the system will interface with the other systems described? \_\_\_ \_\_\_
- d. Does this information support the approved operational concept? \_\_\_ \_\_\_

6. ORGANIZATIONAL PLAN

- a. Are the type units that will employ the system identified? (NOTE: Type units should be identified by the Table of Distribution and Allowance (TDA) numbers and first five digits in the affected Table of Organization and Equipment (TO&Es) the system identified? \_\_\_ \_\_\_
- b. Are the type units that will support the system identified? (NOTE: This information should identify the organizational level which will perform which type maintenance.) \_\_\_ \_\_\_
- c. Is the system(s) to be replaced identified? \_\_\_ \_\_\_
- d. Is the replacement ratio of new to old identified? \_\_\_ \_\_\_

7. SYSTEM CONSTRAINTS

- a. Do the constraints discussed provide meaningful parameters to guide the MATDEV and industry in their search for acceptable solutions? \_\_\_ \_\_\_

3.17

## O&amp;O Plan Checklist

- b. Are the constraints valid and reasonable? ☐ ☐
- c. Are the limiting factors affecting mobility requirements described? ☐ ☐
- d. Are the limiting factors affecting transportability requirements described? ☐ ☐
- e. Are the limiting factors affecting logistics supportability described (for example, use of the standard Army Maintenance System, TMDE, generators, BIT/BITE, operational availability, etc.)? ☐ ☐
- f. Are the limiting factors affecting training to include devices, range facilities, or institutional facilities described? ☐ ☐
- g. Are the limiting factors affecting all six domains of MANPRINT described? ☐ ☐
- h. Are any unique factors affecting the environment described? ☐ ☐
- i. Are any factors affecting communications requirements described? ☐ ☐
- j. Are any limits on size (weight, cubic length, width, or depth) described? ☐ ☐
- k. Have applicable standardization, interoperability, or commonality constraints been described? ☐ ☐
- l. Do MIL-STD references focus on specific constraints? ☐ ☐
- m. Is each constraint supported in the rationale annex? ☐ ☐

## 8. STANDARDIZATION AND INTEROPERABILITY

- a. Has coordination with each of the other Services (Air Force, Marines, and Navy) been affected? ☐ ☐



O&O Plan Checklist

- b. Were similar programs contemplated or in progress by the other Services or allied nations identified? \_\_\_
- c. Did the other Services provide a Joint Potential Indicator? \_\_\_

9. FUNDING IMPLICATIONS (NOTE 1)

- a. Have the gross estimates in single values provided for:
  - total RDTE cost? \_\_\_
  - total procurement cost? \_\_\_
  - unit cost? \_\_\_
  - life-cycle cost? \_\_\_
- b. Do these figures correspond to those in the JMSNS (when applicable)? \_\_\_
- c. Do these figures match those in the O&O Plan? \_\_\_

10. OPERATIONAL MODE SUMMARY/MISSION PROFILE ANNEX (NOTE 2)

- a. Does this annex support the operational concept? \_\_\_
- b. Does this annex address both peacetime and wartime conditions? \_\_\_
- c. Does the content and format comply with AMC/TRADOC Pam 70-11? (NOTE: The OMS/MP is the basis for developing RAM requirements and test plans to evaluate these requirements in an operational environment.) \_\_\_

11. RATIONALE ANNEX

- a. Is full justification provided for each entry in the Operational Characteristics and System Constraints paragraphs? (NOTE: "Self-explanatory" will not be used as all is not obvious to all readers. The use of "TBD" is totally unacceptable because if the author(s) do not know or cannot explain why an entry is being made in either paragraph, they should not make the entry.) \_\_\_

## O&amp;O Plan Checklist

- b. Has this annex been removed from the document for retention by the proponent after CG, TRADOC, approval? \_\_\_\_\_

## 12. COORDINATION ANNEX (NOTE 3)

- a. Does this annex reflect all agencies with which coordination was affected? (NOTE: As a minimum coordination with HQ AMC, principle gaining MACOM, MTMC-TEA, TRADOC Integrating Centers, affected AMC MSCs, other Services, HQDA (DAMO), USASAC, LEA, affected TRADOC centers/schools. OTEA, HQ TRADOC, and HEL must be listed.) \_\_\_\_\_
- b. Did the other Services indicate any similar programs contemplated or in progress and the appropriate Joint Potential Indicator? \_\_\_\_\_
- c. Was the number of comments provided, accepted, and rejected reflected by agency? \_\_\_\_\_
- d. Was full rationale for any non-acceptance of comment by agency provided? \_\_\_\_\_
- e. Has this annex been removed from the document for retention by the proponent after CG, TRADOC, approval? \_\_\_\_\_

3.20

NOTE 1. Required in system specific annexes when more detailed information is required than that contained in the capstone document.

NOTE 2. Not required for capstone document.

NOTE 3. Required in system specific annexes when they are developed after initial capstone with annexes has been approved.

Justification For Major System New Start (JMSNS) Format

Prepare JMSNS in the format shown below. Do not exceed 3 pages. Identify any supporting documentation.

A. Defense Guidance Element. Identify the element of defense guidance to which the system responds.

B. Mission and Threat. Identify the DA Mission Area (numbers and title) and describe the role of the system in the Mission Area. Discuss the Defense Intelligence Agency (DIA) validated projected threat and the shortfalls of existing systems in meeting the threat. Comment on the timing of the need and the general priority of this system relative to others in this Mission Area.

C. Alternative Concepts. Describe known alternatives that will be considered during concept formulation (including product improvements). If an alternative has been selected, state the reasons for rejecting those that have not been selected and any further tradeoffs that remain for the selected system.

D. Technology Involved. For known alternatives, discuss maturity of the technology planned for the selected system design and manufacturing processes, with particular emphasis on remaining areas of risk.

E. Funding Implications. Discuss affordability, including the level of funding the Army is willing to commit to satisfy the need. When a concept has been selected, provide gross estimates of total RDTE cost, total procurement cost, unit cost, and life-cycle cost.

F. Constraints. Describe, as applicable, key boundary conditions for satisfying the need, such as survivability, logistics, and manpower (MANPRINT) constraints, computer resources, standardization and interoperability within NATO or other DOD components, and critical materials and industrial base required.

G. Acquisition Strategy. Provide summary of salient elements of proposed acquisition strategy, such as program structure, competition, and contracting.

Annex A

Coordination Annex. List all agencies, to include those within TRADOC, with which coordination was affected. Full rationale for non-acceptance of comments, if any, must be provided. (This annex will be removed from the basic document after CG, TRADOC, approval. A copy will be retained by the TRADOC proponent.)

## JMSNS Checklist

This checklist is provided for use by all involved in preparing, reviewing, and approving JMSNS.

1. Policy on JMSNS \_\_\_
  - a. Is an O&O Plan being developed? \_\_\_
  - b. Has an O&O Plan been developed and approved? \_\_\_
  - c. Is the operational concept approved? \_\_\_
  - d. Is the total document length 3 pages or less? \_\_\_
  - e. Have HQ AMC and the four TRADOC Integrating Centers concurred? \_\_\_
2. Format and content for JMSNS
  - a. Defense Guidance Element  
Has the appropriate Defense Guidance Element been identified? (NOTE: This information will be provided by HQDA (DAMO-FD).) \_\_\_
  - b. Mission and Threat
    - (1) Have the DA Mission Area(s), number(s), and title(s) been identified? \_\_\_
    - (2) Has the role of the system in the Mission Area(s) been defined? \_\_\_
    - (3) Has the DIA validated the threat? \_\_\_
    - (4) Have the shortfalls of existing systems in meeting the threat been discussed? \_\_\_
    - (5) Has the timing of the need been identified? \_\_\_
    - (6) Has the priority of the system relative others in the Mission Area(s) been identified? \_\_\_
  - c. Alternative Concepts
    - (1) Have all known alternatives to include product improvement of existing systems been described? \_\_\_

JMSNS Checklist

- (2) Have the reasons for rejecting any alternative been stated? \_\_\_
- (3) Have any further tradeoffs for the selected alternative been described? \_\_\_
- d. Technology Involved  
Have the maturity of technology and areas of risk for each alternative been discussed? \_\_\_
- e. Funding Implications
  - (1) Is the level of funding the Army is willing to commit in terms of affordability discussed? \_\_\_
  - (2) Have gross estimates for the selected concept been provided for:
    - total RDTE cost? \_\_\_
    - total procurement cost? \_\_\_
    - unit cost? \_\_\_
    - life-cycle cost? \_\_\_
- f. Constraints  
Have key boundary conditions (constraints) been described for the following:
  - survivability? \_\_\_
  - logistics? \_\_\_
  - manpower (MANPRINT)? \_\_\_
  - computer resources? \_\_\_
  - S&I within NATO? \_\_\_
  - S&I with other Services? \_\_\_
  - critical materials? \_\_\_
  - industrial base required? \_\_\_
- g. Acquisition Strategy (AS)  
Is a summary of the salient elements of the proposed AS been described in terms of the following:
  - program structure? \_\_\_
  - competition? \_\_\_
  - contracting? \_\_\_

3.23

## JMSNS Checklist

## h. Coordination Annex

- (1) Does this annex reflect all agencies with which coordination was affected? (NOTE: As a minimum coordination with HQ AMC, principle gaining MACOM, MTMC-TEA, TRADOC Integrating Centers, affected AMC MSCs, other Services, HQDA (DAMO), USASAC, LEA, affected TRADOC centers/schools, OTEA, HQ TRADOC, and HEL must be listed.) — —
- (2) Did the other Services indicate any similar programs contemplated or in progress and the appropriate Joint Potential Indicator? — —
- (3) Was the number of comments provided, accepted, and rejected reflected by agency? — —
- (4) Was full rationale for any non-acceptance of comment by agency provided? — —
- (5) Has this annex been removed from the document for retention by the proponent after CG, TRADOC, approval? — —

## **Chapter 4**

# **REQUIRED OPERATIONAL CAPABILITY (ROC)/ JOINT SERVICE OPERATIONAL REQUIREMENT (JSOR)**

## Chapter Guide

A Required Operational Capability (ROC) is the Army's definitive statement describing the materiel solution to a mission area deficiency defined through the Concept Based Requirements System (CBRS) process. A ROC concisely states the minimum essential operational, MANPRINT, training, logistic, technical, and cost information to initiate engineering and/or operational systems development or acquisition of the materiel solution. The development or acquisition of the materiel solution must fully consider feedback to doctrine, training, and organizations. An approved ROC and a Milestone II type decision for the program to proceed commit the Army to acquisition of the materiel.

A ROC is normally initiated by the TRADOC proponent when Proof of Principle efforts indicate that the program should enter Development Proveout or that there is sufficient information to support the acquisition of a non-developmental item (NDI). These efforts are conducted in response to an approved Operational and Organizational Plan (O&O Plan) and, if appropriate, a Justification for Major System New Start (JMSNS). The ROC is initiated as early as is feasible to ensure program continuity and orderly program progress through the research, development, and acquisition (RDA) process. The TRADOC proponent develops the ROC in coordination with all players appropriate to the program. The ROC is submitted for approval only when TRADOC and AMC agree that the need has been validated, the operational and technical feasibility of the proposed system has been established, and the system is cost and operationally effective. HQDA (ODCSOPS) is the ROC approval authority for all Designated Acquisition Programs (DAPs) and DOD major programs. TRADOC and AMC will jointly approve ROCs for all other programs.

4.1

## NOTE

An approved ROC is required prior to entry into Demonstration/Validation when the decision authority determines that a DAP or DOD major program must follow the traditional DOD Life-Cycle Model. This ROC will be refined prior to entry into Full Scale Development. Information in the initial ROC will be less specific and bands of performance broader than in the refined version.



## Chapter Guide

A ROC may be prepared to support the RDA of a single or a family of materiel solutions. When an approved O&O Plan and JMSNS document program initiation for a family, normally the follow-on ROC will also document the need for a family of solutions. The ROC will parallel that of the O&O Plan, i.e., it will consist of a capstone ROC and two or more system specific annexes. A capstone ROC with the word "Family" in the title, will be prepared to outline the commonalities of the family and establish the baseline for all of its members. System specific annexes will be prepared for each family member to identify/define unique information and characteristics. This information will not exceed the baseline or be contradictory to that contained in the capstone ROC.

The lead TRADOC proponent will prepare the capstone ROC. The annexes may be prepared by any TRADOC proponent and attached to the capstone document as it is being staffed so that the Joint Working Group (JWG) can develop a document as complete as possible. It is imperative, therefore, that the lead proponent seek early participation by other proponents and the materiel developer (MATDEV). This will facilitate both rapidly obtaining consensus on the capstone document and preparation of the annexes as the authority to obligate funds is dependent on approval of the system specific annexes rather than the capstone document.

## 4.2

## NOTE

ROCs for families of materiel will not be used for or written in lieu of operational concepts.

Processing a capstone document and its accompanying annexes will be according to the following time constraints and will not be delayed for a system specific annex being processed separately. Although it is desirable that all system specific annexes be staffed and approved with the capstone ROC, it is recognized that this may not always be possible or practical. System specific annexes being developed separately, and subsequent to the capstone document, will be processed accompanied by the approved capstone document and according to the ROC time constraints. Development and approval of system specific annexes with not precede development and approval of the capstone document.

## Chapter Guide

Another service may indicate the desire to participate in the program with the Army during the development of a ROC. Should this happen a Joint Service Operational Requirement (JSOR) may be written instead of the ROC. With the exception of the title, which will be a Joint Service Operational Requirement (JSOR), the format will be the same as that for a ROC. The content will be same except for other Service requirements which differ from, or are in addition to, those for the Army. Up to the point of final approval, processing will be according to the Army time constraints and procedures. All JSORs will be forwarded to HQDA (DAMO-FDR) for approval processing after TRADOC approval. The Army, correspondingly, may decide to participate in another Service program. In this case, the other Service document format for the JSOR will be the format used. The TRADOC proponent will process the document using the ROC procedures and time constraints. This processing, however, will not exceed the processing time constraints of the lead service.

Investigations following the initiation of an O&O Plan may reveal that another Service has an approved requirements document that, as is or with minor modifications, adequately describes an Army requirement. Such documents may be approved as the Army requirement through the issuance of a letter by the appropriate approval authority. The document, an approved Army O&O Plan, a current life cycle cost assessment, and any recommended changes with full rationale will be enclosed in the letter. Time constraints and procedures for development by the TRADOC proponent will be the same as for an O&O Plan. The approval process will be the same as for a ROC depending on the program category.

4.3

## Responsibilities

- TRADOC:
- Conduct continuing Mission Area Analyses.
  - Prepare, coordinate, and approve ROC for IPR programs.
  - Prepare, coordinate, and forward ROC for DAP/DOD major programs.
  - Prepare threat information.
  - Participate in AMC MARB review.
  - Chair Joint Working Group (JWG).
  - Conduct Requirements Review Committee (RRC).
  - Prepare issues and criteria during development of the ROC.
  - Distribute approved ROC.

## Responsibilities

- AMC:
- Provide review and comments as requested by TRAUOC.
  - Approve ROC for IPR programs.
  - Assist in threat preparation.
  - Provide funding information.
  - Chair MARB review.
  - Provide the vice-chairman for and participate in JWG.
  - Participate in TRADOC RRC.

## Chapter Proponent Offices

TRADOC: ATCD-ET  
AMC: AMCDE-PQ

## References

## 4.4

The following documents direct or influence procedures for preparation, staffing, and approval of ROC.

DOD: DODD 5000.1  
DODI 5000.2

DA: AR 1000-1  
AR 70-1  
AR 71-9  
AR 381-11

TRADOC/AMC:

Letter of Instruction for Implementation of Industry Review  
of Materiel Requirements Documents (MRD), 26 Mar 86  
(appendix J).

PAM 70-11

AMC: AMC-R 70-5

### Time Constraints

The objective timelines for developing a ROC, and any changes to an approved ROC, are the same once the document is initiated and are depicted below. The numbers depict how many weeks have elapsed after the TRADOC proponent initiates a document and indicate when a specified action must be initiated or completed. Each action must be completed and available for follow-on action as specified below and as specified in the Process Outline.

#### Elapsed Weeks

#### Action

- |   |  |
|---|--|
| 0 | TRADOC proponent prepares first draft ROC.   |
| 2 | TRADOC proponent distributes first draft ROC to: <ul style="list-style-type: none"> <li>- HQ TRADOC (ATCD-E)</li> <li>- TRADOC Schools</li> <li>- TRADOC Integrating Centers (CAC, LOGCEN, SSC, and SSC-NCR)</li> <li>- HQ AMC (AMCDE-PA)</li> <li>- AMC MSCs</li> <li>- Primary and Other MACOM</li> <li>- Security Affairs Command (AMSAC-MI/T)</li> <li>- AMSAA (AMXSY-CR)</li> <li>- Test and Evaluation Agencies</li> <li>- HQDA (DAMO-FDR)</li> <li>- Industry (See LOI-appendix J)</li> <li>- MTMC-TEA</li> <li>- LEA</li> <li>- LABCOM (AMSLC-TP-PI)</li> <li>- Academy of Health Sciences</li> <li>- Army Environmental Hygiene Agency</li> <li>- Medical R&amp;D Command (SGRD-ZA)</li> <li>- OTEA</li> <li>- USAETL (ETL-TD-C)</li> <li>- USANCA (MONA-NU)</li> <li>- Other Services</li> <li>- ADEA</li> <li>- Allies</li> </ul> |

4.5

# REQUIRED OPERATIONAL CAPABILITY/ JOINT SERVICE OPERATIONAL REQUIREMENT

## Time Constraints

On receipt	Addressees review and prepare comments. AMC MARB review of ROC (JSOR).
19	Addressees return comments to proponent school.
21	Proponent host JWG.
23	Proponent prepare final draft ROC.
25	Proponent forward final draft concurrently through HQ AMC and TRADOC Integrating Centers to HQ TRADOC with a copy furnished to HQ TRADOC.
On receipt	HQ TRADOC, HQ AMC, and Integrating Centers review final draft.
29	HQ AMC and Integrating Center forward final draft concurrence to HQ TRADOC
31	TRADOC RRC review final draft.
36	TRASSO obtain DCSCD and CG TRADOC approval.
36	TRASSO forward TRADOC approved ROC to HQ AMC or HQDA for approval.
40	HQ AMC forward approved IPR ROC to TRADOC.
41	TRASSO obtain CARDS reference number for approved IPR ROC from HQDA (DAMO-FDR) through ATCD-ET.
41	TRASSO distribute approved ROC to, as a minimum, all who received initial draft.
44	HQDA forward approved ROC to TRADOC.
46	TRADOC distribute approved ROC to, as a minimum, all who received initial draft.

### Procedure

Detailed procedures for preparation, review, coordination, and approval of a ROC are described on the following pages in the form of descriptive paragraphs on the left-hand page and corresponding flow charts on the facing page.

When appropriate, a "NOTE" is added at the end of a paragraph to highlight options to the action called for in the paragraph or to provide some other insight into the section described.

### Process Outline

1. When the Proof of Principle efforts, conducted in response to an approved O&O Plan or JMSNS, have progressed sufficiently the TRADOC proponent and the AMC lead MSC may agree that the materiel system under development should enter Development Proveout or there is sufficient information to support an acquisition decision. At this time the TRADOC proponent, in coordination with the MSC, prepares a first draft ROC. ROC format begins on page 4.10 with a corresponding checklist beginning on page 4.14.

### NOTE

Evaluation issues and criteria must be developed and processed concurrently with the ROC. ROC and issues and criteria will be forwarded as enclosures one and two, respectively, to the ROC transmittal letters. Additionally, the transmittal letters will discuss the concept of the testing program. (See chapter 13 for specifics on issue and criteria development.)

4.7

2. A ROC will undergo formal worldwide staffing only once, the one-time formal staffing occurring with the first draft. The document will be a complete document. To accomplish this, the MSC will provide the TRADOC proponent with preliminary cost, RAM, and ILS data. If this data is not final, preliminary data will be acceptable, and final data will be provided at the JWG. The procedures will be as described by the following paragraphs. The TRADOC proponent will distribute the first draft document to HQ TRADOC (ATCD-E), HQ AMC (AMCDE-PA), TRADOC Integrating Centers [CAC (ATZL-CAM), LOGCEN (ATLC-M), Soldier Support Center (SSC) (ATSG-DDM), and Soldier Support Center-National Capitol Region (SSC-NCR) (ATZI-NMM)], other interested or affected TRADOC centers or schools, the proponent and other interested or affected AMC MSCs, the primary gaining MACOM, Military Traffic Management Command-Transportation Engineering Agency (MTMC-TEA), Logistics Evaluation Agency (LEA), the primary tester and evaluator, Nuclear and Chemical Agency (NCA), HQDA (DAMO-FDR) and other Services.

## Process Outline

In addition to comments or concurrence, other Services will be asked to identify any similar programs contemplated or in progress and the appropriate Joint Potential Indicator. A response is required from these addressees. They are requested to attend the JWG. The proponent will also forward a copy of the first draft to other MACOMs, HQDA (DASC, PERSO, and DALSO), other testers and evaluators, industry (through the appropriate AMC TILC), and ABCA countries (through HQ TRADOC: ATCD-Y). These addressees are requested to respond if they desire. At HQ TRADOC, the Systems Management Directorate (SMD, ATCD-E) will receive the first draft document, establish suspenses based on the time constraints, and forward it to the appropriate Combat Developer hardware directorate for TRASSO assignment. The TRASSO will then staff the document with the HQ TRADOC Requirements Review Committee (RRC) members and the allied liaison officers stationed at Ft. Monroe (via the disclosure office). The TRASSO will forward a consolidated HQ TRADOC response to the proponent. Whenever possible, the TRASSO will attend the JWG.

## NOTES

4.8

The AMC proponent MSC will convene and chair a MARB to review, evaluate, and establish a coordinated MATDEV position on all ROCs (JSOR). If a DAP or DOD major program, a MARB will be convened and chaired by HQ AMC. MARB review is required prior to JWG. TRADOC will be invited to participate.

Should the TRASSO determine through staffing and review that the requirement is not valid or needs to be questioned, a non-concurrence is in order. A non-concurrence must be determined rapidly and early in the life cycle of the requirements documentation. If there is a non-concurrence, it ideally should be surfaced prior to or at the JWG. It is the responsibility of the TRASSO to advise SMD of such action.

3. All attempts will be made to incorporate comments and resolve disputes prior to conclusion of the JWG. Unresolved issues will be documented with future staffing is to obtain formal signatory documentation of previous concurrence, rather than to conduct another review. The proponent is responsible for preparing the final draft document. The proponent commander/commandant will personally sign all letters of transmittal that forward the final draft document.

### Process Outline

4. The proponent will forward the final draft concurrently through HQ AMC and the four TRADOC Integrating Centers for concurrence to HQ TRADOC with a copy furnished to HQ TRADOC. The TRASSO, in coordination with SMD, will arrange for the RRC to review the document after all through addressees have responded. Any changes to the final draft ROC caused by RRC comments will be incorporated by the TRASSO.

5. Following RRC review of the final draft document, the TRASSO will obtain DCSCD and CG, TRADOC, approval. The TRASSO will then forward the ROC to HQ AMC (AMCDE-PA) or HQDA (DAMO-FDR) for approval. After receipt of the AMC approval, the TRASSO will obtain a CARDS reference number from HQDA (DAMO-FDR) through SMD (ATCD-ET). The TRASSO will distribute all approved ROCs to all DOD agencies which participated in developing the document; ensure it is made available to industry (see appendix J), ABCA countries through ATCD-Y, and allied liaison officers stationed at Ft. Monroe (via the TRADOC disclosure office). A sample letter distributing an approved ROC is on page A.9.

4.9

See graphic on page 4.24.



Required Operational Capability (ROC)/  
Joint Service Operational Capability (JSOR) Format

1. Title.
  - a. Descriptive program title.
  - b. Category (major or non-major).
  - c. CARDS Reference Number: (Assigned by ODCSOPS after approval).
2. Need/Threat. State what is needed. Briefly describe the threat and operational/training deficiency that dictates need for the system. Include the enemy's capability to detect, identify, locate, avoid, suppress, destroy, or otherwise counter the system. Describe the anticipated threat response over time to support evolutionary development when applicable. Classified threat information will be annotated to show the document(s) from which the threat was derived.
3. IOC. (State by FY and Quarter.)
4. Operational/organizational plan. In a brief paragraph state the following:
  - a. How the equipment will be employed.
  - b. The types of units that will use and support equipment. (Attach the approved O&O Plan minus the Operational Mode Summary/Mission Profile (OMS/MP) as annex B).
5. Operational characteristics. Describe only the essential operational features of the system. Included are counter-countermeasure capabilities, physical security, environmental quality control, mobility, transportability, and reliability, availability, and maintainability. Performance must be responsive to battlefield conditions for continuous combat (such as full ECM, directed energy, smoke aerosols, obscurants, electromagnetic environmental effects (E3), rain, fog, haze, and dust). Performance characteristics will be expressed in bands of performance. Reliability and maintainability will be stated as single values in terms of operational requirements. During development, commercial, other Service, NATO, or other allied nation characteristics of existing or planned systems should be considered for inclusion. This will provide a basis for system interoperability, co-production, or standardization. The requirements and provisions for the following must be considered:

4.10

ROC/JSOR Format

- a. Compatibility with existing systems.
- b. Continuity of Operations (CONOPS) of a BAS.
- c. Security.
- d. Transportability and mobility.
- e. Reliability, availability, and maintainability.
- f. Standardization, including commonality for components, software, ammunition, power, TMDE, etc.
- g. International standardization agreements.
- h. Nuclear survivability and NBC contamination survivability.
- i. Individual and collective protection equipment.
- j. Adverse weather and reduced visibility conditions (smoke and obscurants), operations, and military operations on urbanized terrain, where applicable.
- k. Communications.
- l. Airdrop, airlift certification, and jumppack.
- m. Lighten the force.
- n. Camouflage.
- o. Climatic design types.
- p. Special purpose deception materiel.
- q. Directed energy survivability.
- r. P3I (include timeframe for block modifications).

6. Technical assessment. For an NDI, briefly outline planned market investigation effort and/or military suitability evaluations. Include a brief paragraph describing the technical effort required. Address major areas for full scale/abbreviated development in terms of scope, technical approach, and associated risks in the medium or low categories.

7. System support assessment. Briefly describe the system support plan. Include statement that the system support plan will be available for testing during Initial Operational Test and Evaluation (IOTE) and the systems support package will be validated prior to IOC.

8. MANPRINT Assessment.

a. Manpower/Force Structure Assessment. Estimate manpower requirements per system, per unit, and total Army (Active, Army National Guard (ARNG), U.S. Army Reserve (USAR). Include an assessment of alternatives to reduce manpower requirements by component. If increases in force structure are required, then a tradeoff analysis must be conducted.

## ROC/JSOR Format

b. Personnel assessment. Identify personnel constraints by operator, maintainer, repairer, and other support Military Occupational Specialty (MOS). Describe the aptitude of the intended operator, maintainer, and repairer. An analysis must be conducted to assess any changes to the MOS structure or MOS workload. A summary of the relationship of soldier performance to measures of system effectiveness should be included.

c. Training assessment. Discuss overall training strategy to include the need for system Training Devices (TD) and embedded training requirements. TD requirements will be documented in appendix 5. New Equipment Training (NET), operator, maintenance personnel training, technical manuals (TM) and training materiel requirements will be stated in terms of need for both institutional and unit training.

d. Human Factors Engineering (HFE). Identify the need for an HFE analysis and address the HFE considerations and constraints.

e. System Safety. Address system safety requirements and safety considerations and constraints.

f. Health Hazard Assessment (HHA). Address health hazard requirements and health hazard considerations and constraints.

9. Standardization and interoperability.

a. Discuss other Services, foreign nations interest in the program identified during staffing. Identify similar programs contemplated by other Services or allied nations (RSI).

b. Describe standardization, interoperability, or commonality constraints that apply because of other Army, allied nations, or other Service missions, tasks, relationships, or systems.

10. Life-cycle cost assessment.

This assessment will be expressed in terms of the life-cycle phases of development, production, military construction, fielding, and sustainment costs (costs will include software costs). Also, include the design to-cost goals. This information is contained in annex A.

# ROC/JSOR Format

## 11. Milestone schedule.

Provide a listing of significant events with dates by FY and Quarter to occur between approval of document, and the IOC date. The following should be included:

- a. ROC or JSOR approval.
- b. MDR I (IPR or ASARC/JRMB).
- c. Technical Testing (TT)/IOTE begin and end (if required).
- d. MDR II (IPR or ASARC/JRMB) (if required).
- e. TT/IOTE begin and end (if required).
- f. MDR III (IPR or ASARC/JRMB).
- g. IOC.

Appendix 1 - Rationale. This provides an audit trail and full rationale for determining how the characteristics in paragraph 5 of the basic document were derived. Use of the term "self-explanatory" is prohibited.

Appendix 2 - COEA. Attach an executive summary of the COEA or AA.

Appendix 3 - RAM Rationale. Executive summary of the RAM Rationale Report (AR 702-3).

Appendix 4 - Operational Mode Summary/Mission Profile (updated version from O&O Plan).

Appendix 5 - Training Device (TD) (when required). A separate appendix is required for each TD. Appendices should be numbered 5a, 5b, 5c, etc. The format for training devices is in chapter 5.

Annex A - Life-Cycle Cost assessment.

Annex B - O&O Plan. (Attach the approved O&O Plan minus the OMS/MP.)

Annex C - Coordination.

List primary major commands, other Services, allied nations, and activities with which coordination was affected. Provide full rationale for nonacceptance of comments, if any.

4.13

## ROC/JSOR Checklist

This checklist is provided for use by all involved in preparing, reviewing, and approving ROC and JSOR when the Army has the program lead.

- | A. Policy on ROC   | <u>YES</u> | <u>NO</u> |
|--|------------|-----------|
| 1. Is the O&O Plan approved?   | ___        | ___       |
| 2. Is the JMSNS, if appropriate, approved?   | ___        | ___       |
| 3. Is the basic document 6 pages or less?  | ___        | ___       |
| 4. Are initial evaluation issues and criteria included as enclosure 2 to the transmittal letter for the O&O Plan?            | ___        | ___       |
| 5. Are the results of staffing the ROC with industry contained in enclosure 3 to the transmittal letter for the final draft? | ___        | ___       |
| 6. Have HQ AMC and the TRADOC Integrating Centers concurred (for approval processing only)?                                  | ___        | ___       |
2. Format and content for ROC/JSOR?
1. Title
    - a. Is there a descriptive program title? \_\_\_
    - b. Is the program category (DOD major, DAP, or IPR) indicated. \_\_\_
    - c. After approval has a CARDS reference number been assigned? (NOTE: Leave blank until HQ TRADOC and HQ AMC have approved the ROC for IPR level programs. HQDA will assign a number for DAP and DOD major level programs as part of the approval processing.) \_\_\_
  2. Need/Threat (NOTE 1)
    - a. Is the needed operational capability clearly and concisely described? \_\_\_
    - b. Is the threat information an updated synopsis of that in the approved O&O Plan? \_\_\_

ROC/JSOR Checklist

- c. Does the deficiency description match that in the O&O Plan? — —
- d. Is there a logical connection among the need, threat, and deficiency? — —
- e. Was the source for all classified information identified? (NOTE: Threat information whenever possible should be unclassified.) — —

3. IOC

Is the IOC identified by Fiscal Year and Quarter, i.e., YQFYXX? (NOTE: For a cap-stone ROC, refer to the system specific annexes for individual IOCs.) — —

4. Operational/Organizational Plan (NOTE 1)

- a. Is the operational plan paragraph an updated synopsis of the operational plan paragraph in the approved O&O Plan? — —
- b. Is the organizational plan paragraph an updated synopsis of the organizational plan paragraph in the approved O&O Plan? (NOTE: An approved O&O Plan need not be updated to support a ROC. Any updated operational or organizational information will be contained in this paragraph.) — —

5. Operational Characteristics

- a. Is each characteristic really essential to mission accomplishment? — —
- b. Are characteristics expressed in bands of performance, where appropriate? (NOTE: Bands of performance should be narrower in each requirements document as selected a DAP or DOD major programs progress from Requirements/Tech Base Activities to Proof of Principle to Development Proveout.) — —
- c. Were characteristics of existing or planned commercial, other Service, or allied nation systems included? — —

4.15

## ROC/JSOR Checklist

- d. Do all systems require this characteristic?  
(e.g., Do all systems need to be airdrop  
configured or fitted with a cold weather  
kit?) \_\_\_\_\_
- e. Can each characteristic be evaluated  
during user experimentation and testing? \_\_\_\_\_
- f. Do MIL-STD citations focus on specific  
characteristics? \_\_\_\_\_
- g. When applicable, are requirements/  
provisions addressed for the  
following:
- (1) Compatibility with existing systems? \_\_\_\_\_
  - (2) Continuity of Operations (CONOPS)  
of a BAS? \_\_\_\_\_
  - (3) Security? \_\_\_\_\_
  - (4) Transportability and mobility? \_\_\_\_\_
  - (5) Reliability, availability, and  
maintainability? \_\_\_\_\_
  - (6) Standardization, including commonality  
for components, software, ammunition,  
power, TMDE, etc? \_\_\_\_\_
  - (7) International standardization  
agreements. \_\_\_\_\_
  - (8) Nuclear survivability and NBC  
contamination survivability? \_\_\_\_\_
  - (9) Individual and collective protection  
equipment? \_\_\_\_\_
  - (10) Adverse weather and reduced visibility  
conditions (smoke and obscurants), and  
military operations on urbanized terrain,  
where applicable? \_\_\_\_\_
  - (11) Communications. \_\_\_\_\_

ROC/JSOR Checklist

- |   |     |     |
|---|-----|-----|
| (12) Airdrop, airlift certification, and jumppack?  | ___ | ___ |
| (13) Lighten the force?   | ___ | ___ |
| (14) Camouflage?  | ___ | ___ |
| (15) Climatic design types?   | ___ | ___ |
| (16) Special purpose deception materiel?  | ___ | ___ |
| (17) Directed energy survivability?   | ___ | ___ |
| (18) P3I (include timeframe for block modifications)?   | ___ | ___ |
| h. Are reliability and maintainability expressed as single values in operational terms?   | ___ | ___ |
| i. Do any of the characteristics in the system specific annexes exceed or contradict those in the capstone ROC?   | ___ | ___ |
| j. Is each characteristic fully supported in the rationale appendix?  | ___ | ___ |
| k. Are provisions for P3I applicable?   | ___ | ___ |
| l. Are provisions for P3I discussed as block modifications?   | ___ | ___ |
| m. Do P3I provisions address the timeframe for each block modification?<br>(NOTE: Timeframe should be expressed as FYXX-YY and should be a period of time after IOC.) | ___ | ___ |
| 6. Technical Assessment   |     |     |
| a. Does the proposed system represent a quantum leap forward in technology?   | ___ | ___ |
| b. Is this technology available?  | ___ | ___ |
| c. Is this technology, if not available, discussed in the P3I paragraph?  | ___ | ___ |

4.17



## ROC/JSOR Checklist

- d. Are the technologies for all minimum essential characteristics available at medium or low risk? \_\_\_\_\_
- e. Is the technical effort described? \_\_\_\_\_
- f. Does the market investigation fully support an NDI solution or the use of NDI components? \_\_\_\_\_

## 7. System Support Assessment

- a. Is system support discussed in the following terms:

- (1) Standard Army Maintenance System? \_\_\_\_\_
- (2) Standard TMDE? \_\_\_\_\_
- (3) Use of BIT/BITE? \_\_\_\_\_

- b. When there will be a formal Milestone I, is the availability of the system support plan for evaluation during operational testing discussed? \_\_\_\_\_

- c. Is the availability of the system support package for validation during IOTE discussed? \_\_\_\_\_

- d. When an NDI solution, is the requirement for validation of the system support package prior to IOC discussed? \_\_\_\_\_

## 8. MANPRINT Assessment

- a. Manpower/Force Structure Assessment

- (1) Are the manpower requirements per system, per unit, and total Army (Active, ARNG, and USAR) listed? \_\_\_\_\_
- (2) Is a tradeoff analysis for any force structure increases provided? \_\_\_\_\_
- (3) Is an assessment of alternatives to reduce manpower requirements by component provided? \_\_\_\_\_

ROC/JSOR Checklist

b. Personnel assessment

(1) Are the personnel constraints by  
MOS discussed for the following:

- Operator? ☐ ☐
- Maintainer? ☐ ☐
- Repairer? ☐ ☐
- Other support personnel? ☐ ☐

(2) Is a brief summary of the relationship  
of soldier performance to increases of  
system effectiveness provided?

c. Training assessment

(1) Is the overall training strategy  
discussed? ☐ ☐

(2) Is the need for training devices  
discussed? (NOTE: When system  
specific training devices are required,  
this paragraph should refer to the  
training device appendix(es).) ☐ ☐

(3) Is the need for embedded training  
discussed? ☐ ☐

(4) Is the need for training discussed in  
terms of both institutional and unit  
training? ☐ ☐

(5) Does NET training include a description  
of DTT? ☐ ☐

d. Human Factors Engineering (HFE)

(1) Is the need for an HFE analysis  
described? ☐ ☐

(2) Are the HFE analysis considerations and  
constraints identified?

4.19

## ROC/JSOR Checklist

## e. System Safety

(1) Are systems safety requirements described? ☐ ☐(2) Are systems safety considerations and constraints identified? (NOTE: Any unique safety considerations affecting training ranges should be discussed in this paragraph?) ☐ ☐

## f. Health Hazard Assessment (HHA)

(1) Are any unique HHA requirements described? ☐ ☐(2) Are HHA considerations and constraints identified? ☐ ☐

4.20

## 9. Standardization and Interoperability

a. Has coordination with each of the other Services (Air Force, Marines, and Navy) been affected? ☐ ☐b. Were similar programs contemplated or in progress by the other Services or allied nations identified? ☐ ☐c. Did the other Services provide a Joint Potential Indicator? ☐ ☐

## 10. Life-Cycle Cost Assessment (LCCA) (NOTE 2)

Is a current validated LCCA contained in annex A.? ☐ ☐

## 11. Milestone Schedule (NOTE 2)

a. Are all dates listed by FY and Quarter i.e., AQFYBB? ☐ ☐

ROC/JSOR Checklist

b. Does the list of events include:

- |  |     |     |
|--|-----|-----|
| (1) ROC or JSOR approval?                | ___ | ___ |
| (2) MDRI (DAP/DOD major)?                | ___ | ___ |
| (3) TT/UTI begin and end (if required?)  | ___ | ___ |
| (4) MDR I/II or MDR II?                  | ___ | ___ |
| (5) TT/IOTE begin and end (if required?) | ___ | ___ |
| (6) MDR III?                             | ___ | ___ |
| (7) IOC?                                 | ___ | ___ |

12. Appendix 1 - Rationale

- |   |     |     |
|---|-----|-----|
| a. Is full justification provided for each entry in paragraph 5? (NOTE: "Self-explanatory" will not be used as all is not obvious to all readers. The use of "TBD" is totally unacceptable because if the author(s) do not know or cannot explain why an entry is being made in either paragraph they should not make the entry.) | ___ | ___ |
| b. Are single value characteristics defined and justified?  | ___ | ___ |
| c. Is each characteristic supported by rationale based on analysis?   | ___ | ___ |

4.21

13. Appendix Z - COEA (NOTE 2)

- |   |     |     |
|---|-----|-----|
| a. For a formal Milestone I, is the executive summary of the preliminary analysis attached? | ___ | ___ |
| b. For Milestone I/II or II in the executive summary of the COEA or AA attached?            | ___ | ___ |

14. Appendix 3 -- RAM rationale (NOTE 2)

- |   |     |     |
|---|-----|-----|
| a. Is the executive summary of the RAM Rationale Report attached? | ___ | ___ |
| b. Do the figures expressed support RAM figures in paragraph 5?   | ___ | ___ |

## ROC/JSOR Checklist

- c. Do the figures presented address all components of the system (i.e., weapon system, carrier, power, commo, etc.)? — —

15. Appendix 4 - Operational Mode Summary/Mission Profile (OMS/MP). (NOTE 1)

Is an updated version of the OMS/MP originally written as part of the O&O Plan attached?  
(NOTE: Updated OMS/MP from the system specific annexes to the approved family O&O Plan will be appendix 4 to the corresponding system specific annexes to the family ROC.) — —

16. Appendix 5 - Training Devices (NOTE 2)

- a. Has a thorough analysis been conducted to determine the need for a system training device(s)? — —

- b. Does the training device description comply in content and format with chapter 5 ? — —

- c. Is there a separate appendix for each device if multiple devices are required?  
(NOTE: If there are multiple appendices they will be numbered 5a, 5b, 5c, etc.) — —

17. Annex A - Life Cycle Cost Assessment (LCCA) (NOTE 1)

- a. Does the LCCA content and format comply with appendix ? — —

- b. Is the validation stamp less than 1 year old? (NOTE: The inflation guidance used should be the latest available in relation to the time the LCCA was completed. — —

18. Annex B - O&O Plan

- a. Is the approved O&O Plan attached? — —

- b. Has the OMS/MP been removed and updated in appendix 4? — —

ROC/JSOR Checklist

19. Coordination Annex (NOTE 3)

- a. Does this annex reflect all agencies with which coordination was affected?  
(NOTE: As a minimum, coordination with HQ AMC, principle gaining MACOM, MTMC-TEA, TRADOC Integrating Centers, AMC lead MSC, HQDA (DAMO), USASAC, LEA, affected TRADOC centers/schools, OTEA, HQ TRADOC, and HEL must be listed.)
- b. Was the number of comments provided, accepted, and rejected by agency reflected?
- c. Was full rationale for any non-acceptance of comment by agency provided?

4.23

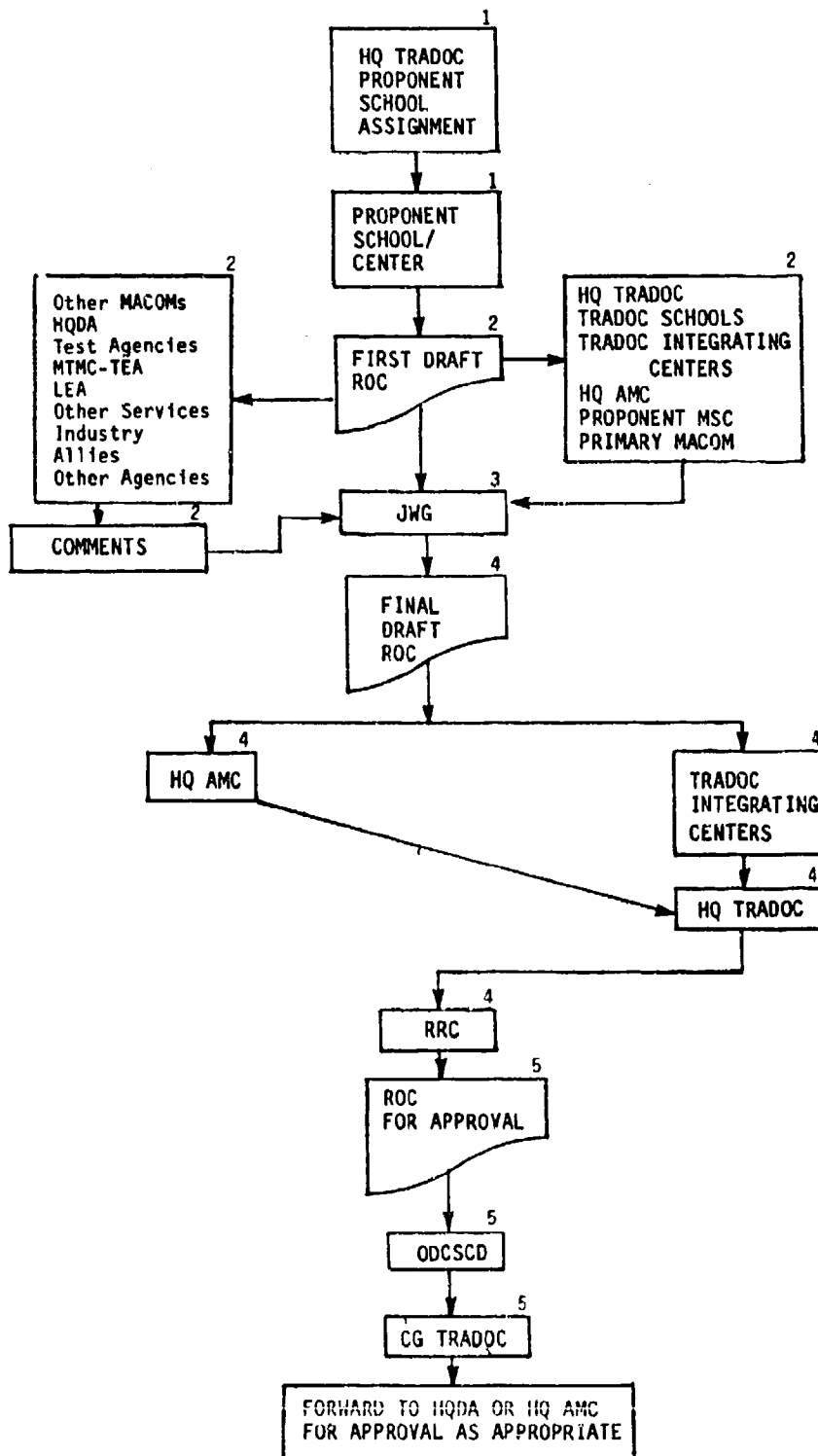
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NOTE 1. Required in system specific annexes when more detailed information is required than that contained in the capstone document.

NOTE 2. Not required for capstone document.

NOTE 3. Required in system specific annexes when they are developed after initial capstone with annexes has been approved.

## Process Outline



4.24

## **Chapter 5**

# **TRAINING DEVICE REQUIREMENTS DOCUMENTS**



## Chapter Guide

A training device requirement can be in any of three forms: a Training Device Requirement (TDR); a Commercial Training Device Requirement (CTDR); or, an appendix to a system Required Operational Capability (ROC) document. A TDR presents operational, technical, logistical, and cost information necessary for development, testing, and procurement of nonsystem training devices that will require a research and development (R&D) effort. A CTDR is used to document the requirement for training devices that are commercially available and require no R&D effort to alter the device to meet the training need. An appendix to a system's ROC is used to document the operational, technical, logistical, and cost information pertaining to a system specific training device. Where more than one type of device is required for a system, a separate appendix is used for each type device.

The TDR is a formal requirement. When approved and funded, it commits the Army to a training device, simulator, or simulation acquisition. It is prepared by the proponent training developer in coordination with HQDA, the materiel developer (MATDEV), combat developer (CBTDEV), logistician, MANPRINT planner, tester, and interested MACOM.

The CTDR document is also prepared by the proponent training developer (or a MACOM for a MACOM-peculiar requirement) and is divided into two funding categories: expense items (those which cost less than \$5,000 per unit) and investment items (those which cost more than \$5,000 per unit). Devices procured under a CTDR are exempt from type classification.

The training device appendix to a ROC is used only for a system training device and is the authorizing document to allow research, development, and procurement of a training device concurrent with the development of the system. The format for a training device appendix to a ROC is the same as the format for a TDR (see page 5.17).

## Responsibilities

- 5.2
- TRADOC:
- Establish and chair the Joint Working Groups (JWG).
  - Develop training device requirements documents.
  - Conduct Cost and Training Effectiveness Analysis (CTEA).
  - Conduct Training Development Studies (TDS).
  - Develop the Basis of Issue Plan (BOIP).
  - Jointly approve and sign TDR below \$500 million and CTDR between \$15 and \$500 million.
  - Approve CTDR below \$15 million.
  - Publish and distribute approved requirements documents (CTDR and TDR).
  - Provide combat/training developer input to the Qualitative and Quantitative Personnel Requirements Information (QQPRI).
- AMC:
- Vice-Chair the JWG.
  - Assist in preparation of requirements documents.
  - Provide BOIP Feeder Data and QQPRI to TRADOC.
  - Jointly approve and sign TDR below \$500 million and CTDR between \$15 and \$500 million.
  - Develop, procure, and distribute training devices.

## References

- DA: AR 71-9  
AR 350-38
- TRADOC: Training Developers' Procedural Guide for Training Device Documentation.

### Time Constraints

Once preparation of a training device appendix to the ROC is started, it should be governed by the same time constraints placed on the ROC itself. General timelines for TDR and CTDR are indicated in the following text and flow charts as appropriate.

### Procedure

Detailed procedures for the preparation, review, coordination, and approval of a Training Device Needs Statement (TDNS), TDR, and CTDR are described on the following pages in the form of descriptive paragraphs on the left-hand page and corresponding flow chart on the facing page. Formats for a TDNS, TDR, and CTDR are provided at the end of each section that address the procedures for that document. Checklists to assist in the preparation of the documents are also included and are located following each document format. When appropriate, a "NOTE" has been added to highlight actions called for in the paragraph or to provide some other insight into the action required.

The CTDR can be used to document an Army-wide or MACOM-peculiar requirement. The format used is the same (see page 5.33), however, the staffing and approval authorities are different. This chapter will cover the procedures for both an Army-wide and a MACOM-peculiar CTDR requirement.

Process Outline  
(TDR)

1. The need for a new or improved nonsystem training device may be proposed by an individual, unit, agency, or command and is documented in a TDNS in the format at page 5.14. An approved TDNS with a supporting TDS is required for prioritization of the need and before a TDR documentation effort can be initiated.

NOTE

When the need for a new or improved training device is proposed from a source other than a TRADOC proponent, the originator will forward the proposal (in TDNS format) to Commander, US Army Training Support Center, ATTN: ATIC-DMO, Fort Eustis, VA 23604, who will review the proposal and forward the TDNS to the appropriate proponent school or center. Upon receipt of a proposal from an outside agency, assuming concurrence, the proponent will assume full proponency and follow the procedures set forth in this chapter for a TDR or CTDR, as appropriate.

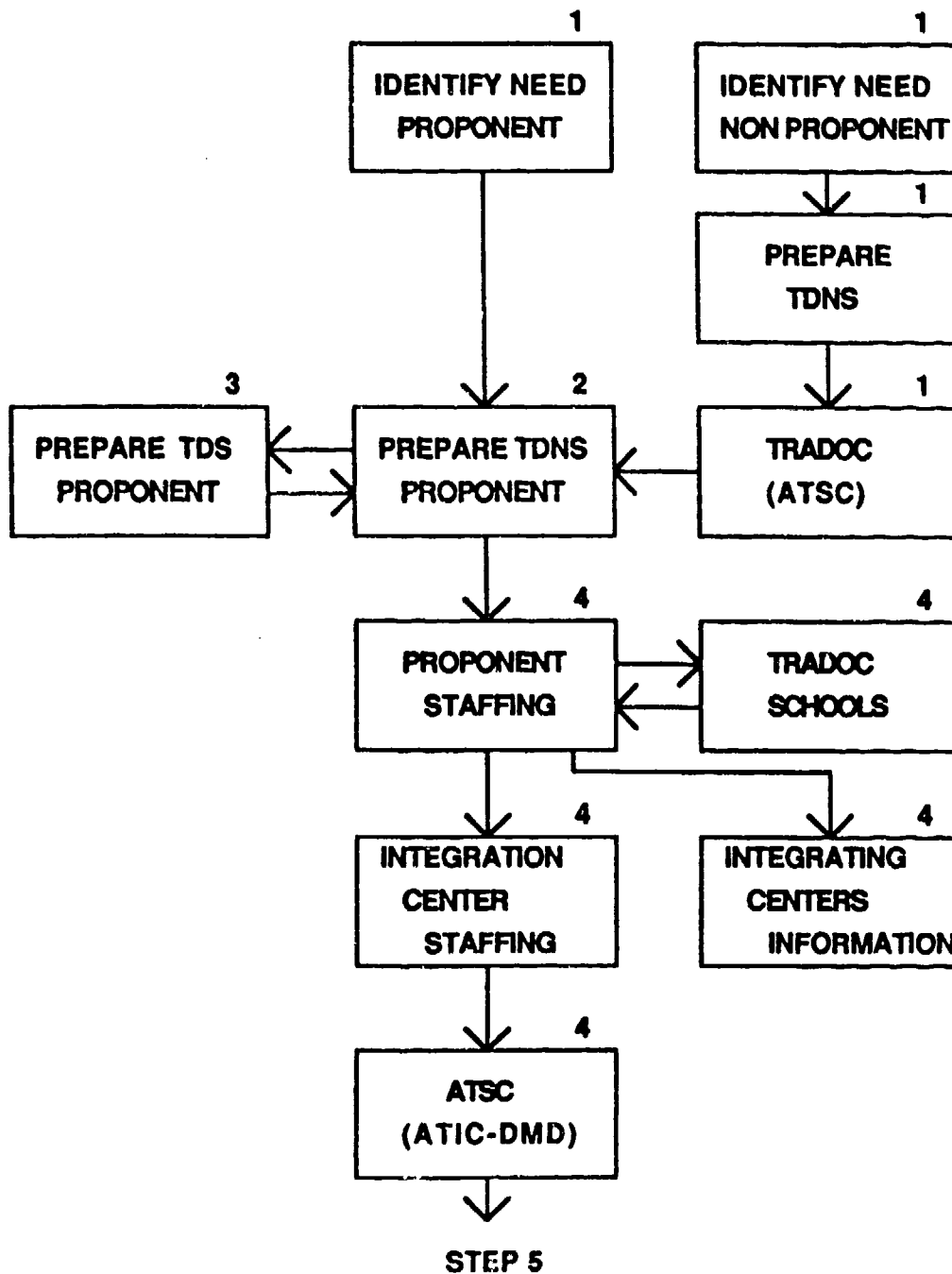
5.4

2. The proponent begins the TDR process by preparing a TDNS in the appropriate format. The TDNS is necessary to enable the Army's training device managers to prioritize its device needs through the MACOM Annual Prioritization Panel process (see step 7).

3. The proponent initiates a preliminary TDS concurrently with the preparation of a TDNS. The preliminary TDS will address other media/device alternatives and consider the relative gross cost of each alternative. The preliminary TDS will be attached to the proposed TDNS when it is forwarded to Army Training Support Center (ATSC) for approval.

4. The proponent staffs the completed TDNS, with its supporting preliminary TDS, internally and with other TRADOC schools, as appropriate. Once this staffing action is complete, the proponent forwards the TDNS and preliminary TDS through its Integrating Center to ATSC (ATTN: ATIC-DMD). Concurrently, the proponent will forward an information copy of the document package to the other two Integrating Centers.

**Process Outline  
(TDR)**



5.5

Process Outline  
(TDR)

5. The ATSC action officer will review the TDNS with supporting preliminary TDS and concurrently staff the TDNS within ATSC, HQ TRADOC, and to the MATDEV (PM TRADE) for comments. Upon completion of the staffing and assuming concurrence, the TDNS will be approved by Commander, ATSC, and returned to the proponent for initiation of the prioritization worksheet in preparation for the next MACOM Prioritization Panel. (The TDS is reviewed and, if appropriate, approved within the Devices Management Directorate (DMD) prior to approval of the TDNS.)

6. The proponent prepares the prioritization worksheet and forwards it to ATSC (ATIC-DMO) in time for review by the Annual MACOM Prioritization Panel.

7. The MACOM Prioritization Panel is co-hosted by HQDA (DAMO-TR) and ATSC (ATIC-DM). During the conduct of the panel, proponents may be required to brief each of their device requirements.

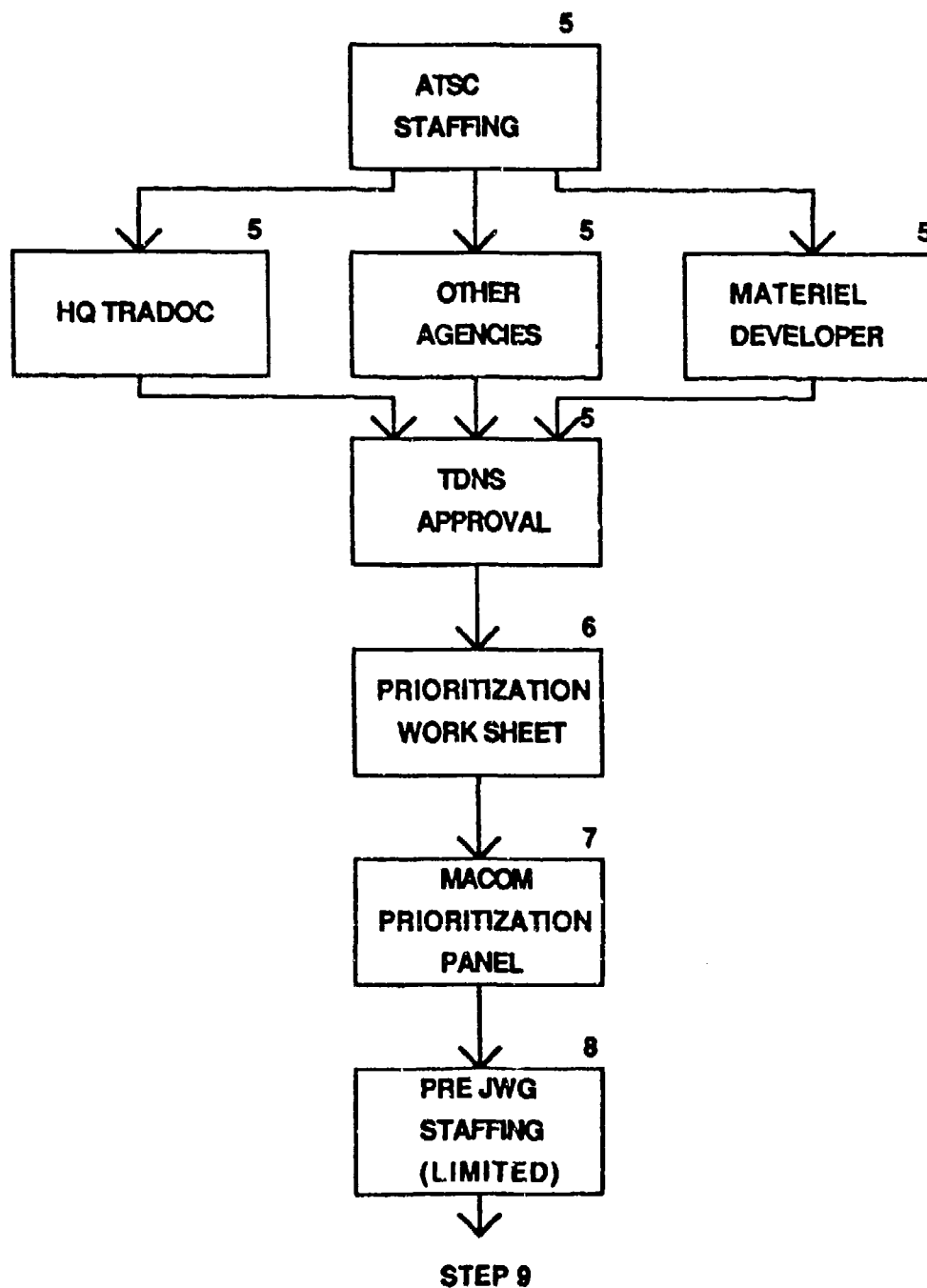
**5.6**

## NOTE

Prior to the panel, all competing device requirements are aligned with current Battlefield Development Plan (BDP) deficiencies by the Combined Arms Training Activity (CATA). Subsequently, ATSC (DMD) then forms a notional prioritization list based upon the BDP alignment and program executability. This list then becomes the basis for the MACOM Panel's efforts. Once a device has received sufficient priority and the proponent is notified by ATSC (DMD) to begin the TDR process, the proponent coordinates a date for the first JWG with their designated ATSC and PM TRADE action officers.

8. The proponent prepares an initial draft TDR in the format at page 5.14 and forwards the document to all potential JWG attendees at least 30 days prior to JWG I. Agencies and MACOMs are requested to provide comments to the proponent, if they will not be represented at the JWG.

**Process Outline  
(TDR)**



5.7

Process Outline  
(TDR)

9. The proponent as chairman and the MATDEV (PM TRADE) as vice chairman hosts JWG I. The purpose of JWG I is to define the acquisition strategy, establish program milestones, refine the draft TDR, and task appropriate JWG members to initiate supporting efforts to complete the TDR documentation package. These supporting initiatives include, but are not limited to:

- Develop technical approach alternatives - (AMC).
- Initiate BOIP Feeder Data and QQPRI - (AMC).
- Develops System MANPRINT Management Plan - (TRADOC/AMC).
- Refine TDS - (TRADOC).
- Prepare/refine Operational Mode Summary/Mission Profile (OMS/MP) - (TRADOC).
- Initiate an Information Mission Management Plan (IMMP) initiative, if appropriate - (TRADOC).

At the completion of JWG I (NLT 1 week following), the proponent refines the TDR based on the results of the JWG and forwards copies along with the minutes of the meeting to all attendees and to other interested agencies and MACOMs.

5.8

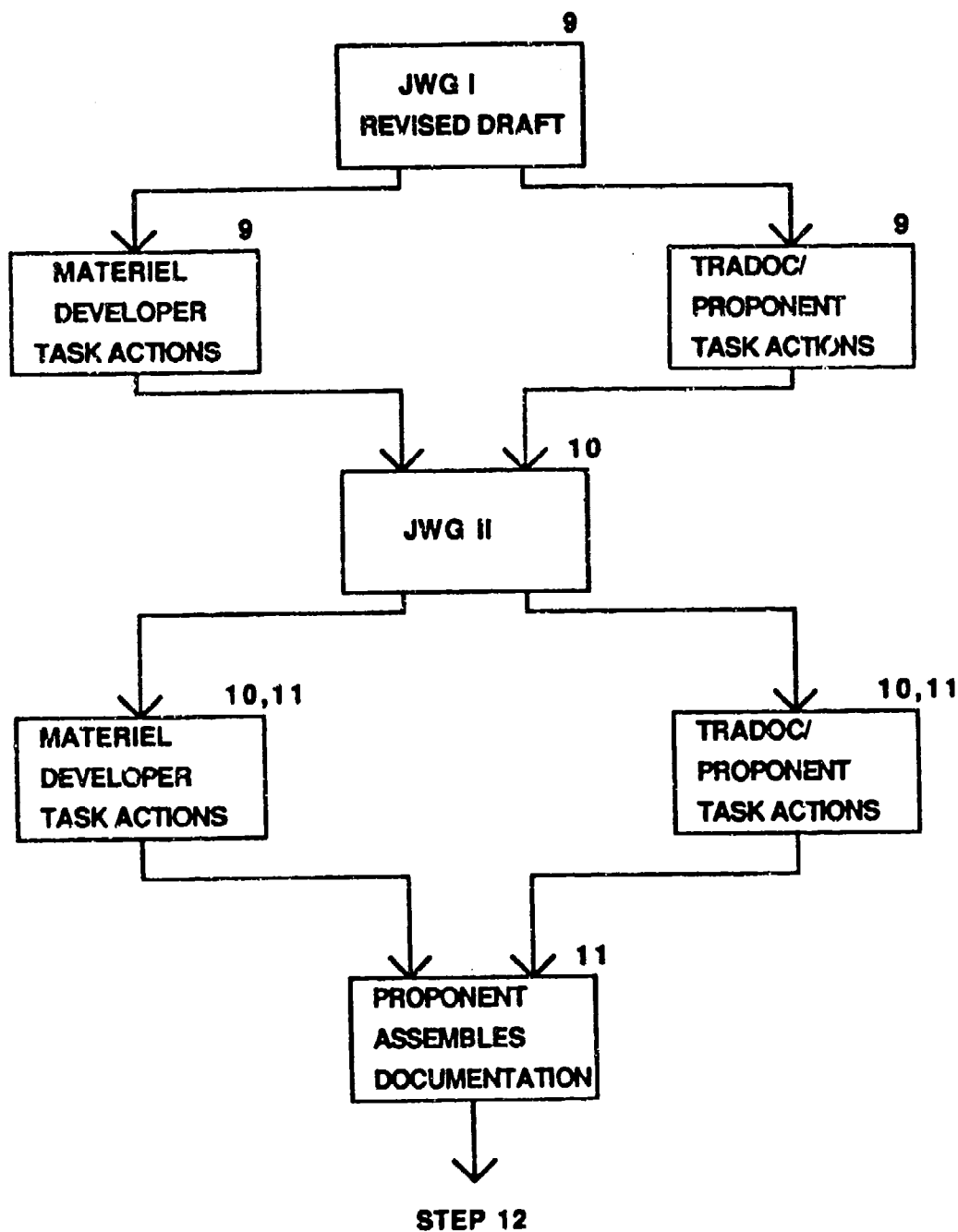
10. Approximately 5 to 6 months following JWG I, the second and final JWG is scheduled by the proponent and MATDEV. The purpose of JWG II is for the MATDEV to present the technical approach alternatives and corresponding logistical support alternatives; and for the proponent to select the Best Technical Approach (BTA) and appropriate logistical support concept. Following selection of the BTA, the JWG establishes additional program milestones and tasks attendees for final elements of the TDR documentation package. These additional elements are:

- Baseline Cost Estimates (BCE) - (AMC).
- Final BOIP/QQPRI data - (TRADOC).
- Final TDS - (TRADOC).
- Completed Reliability, Availability, and Maintainability (RAM) Rationale Report - (TRADOC).
- Completed/refined OMS/MP - (TRADOC).
- Test and Evaluation Master Plan (TEMP) - (AMC/TRADOC).

11. Approximately 3 months following JWG II, the proponent assembles the final TDR documentation package in preparation for worldwide staffing.



Process Outline  
(TDR)



5.9

Process Outline  
(TDR)

12. The proponent staffs the TDR documentation package to all appropriate TRADOC schools for comment. Once proponent staffing is complete, the TDR package is forwarded through CATA to the Logistics Center (LOGCEN) for forwarding to ATSC. Simultaneously, an advance information copy is forwarded direct to the LOGCEN. The intent is for the LOGCEN to have sufficient time to review and approve the RAM Rationale Report annex, which will be retained on permanent file at the LOGCEN.

13. Within 15 days of receipt (assuming concurrence), CATA will forward the original TDR package through the LOGCEN to ATSC (ATIC-DMD). The LOGCEN will forward the package within 15 days to ATSC.

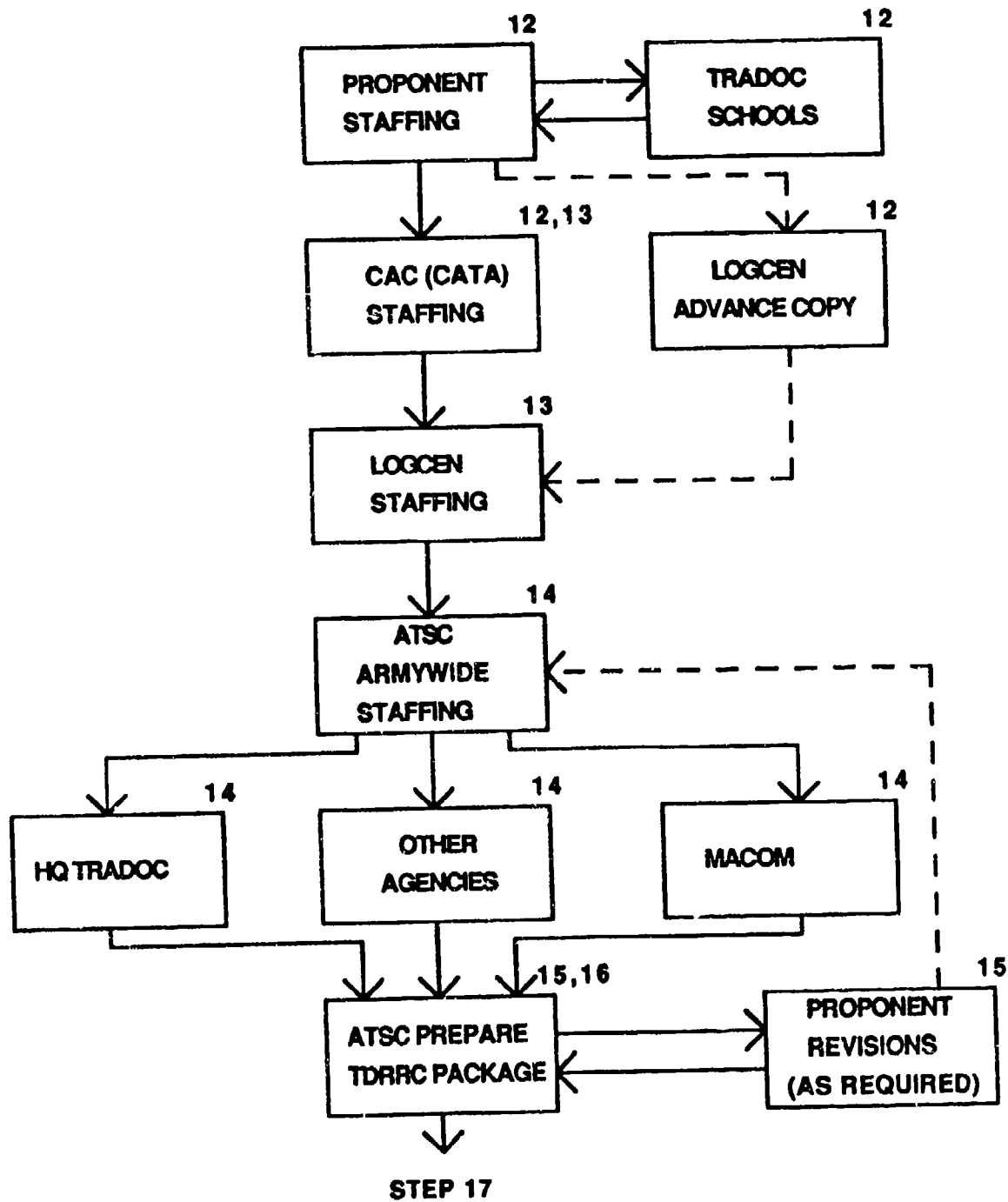
**5.10**

14. Upon receipt, ATSC will staff the documentation package internally with HQ TRADOC, the MACOM, and to other Services as appropriate.

15. Upon completion of worldwide staffing, and if no major changes are required, the ATSC action officer will refine the package and prepare it for presentation to the Training Device Requirements Review Committee (TDRRC). Major revisions will require the package to be returned to the proponent for appropriate action.

16. The ATSC action officer will schedule the TDR documentation package to go before the TDRRC and will brief the requirement before the committee, if required.

**Process Outline  
(TDR)**



5.11

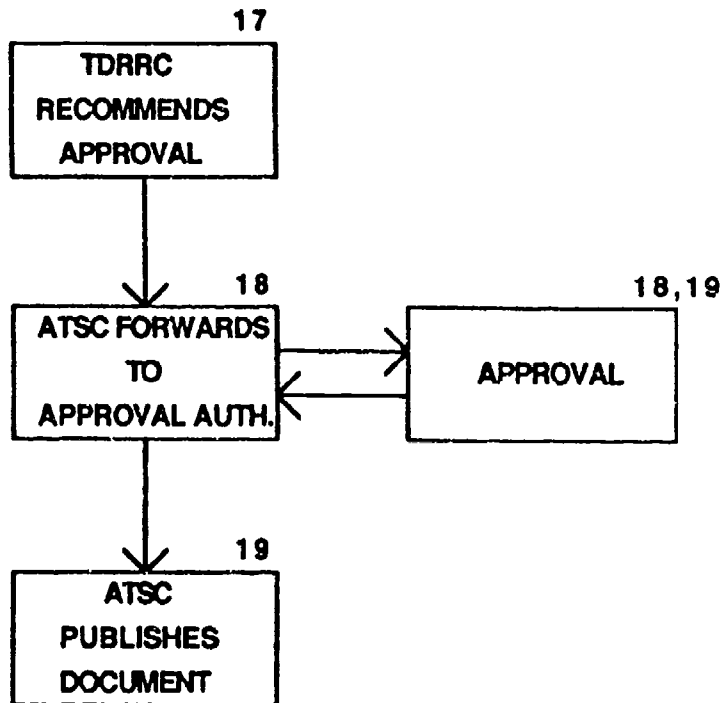
Process Outline  
(TDR)

17. The TDRRC will review each TDR and recommend approval/disapproval, as appropriate. The scheduling and conduct of the TDRRC is the responsibility of ATSC (ATIC-DMO).

18. Assuming TDRRC recommended approval, the TDR documentation package will be forwarded by ATSC (ATIC-DMO) to the appropriate approval authority. (Below \$500 million - joint AMC/TRADOC approval; above \$500 million - HQDA.)

19. Upon approval, ATSC will acquire a CARDS number for the document and publish/distribute the document, as appropriate.

**Process Outline  
(TDR)**



5.13

## TDNS FORMAT

## 1. Training Device Need

a. Briefly describe the nature of the training deficiency in terms of training capabilities required and not the characteristics of a hardware or software system (e.g., train tank gunners to engage moving targets between 500 and 3000 meters with a hit probability of .70 on first round fired).

b. Identify the tasks to be trained and attach the preliminary TDS as annex A.

2. Target audience description: Briefly describe the capabilities of the individual who will be trained by the device.

3. Current and planned training strategies: Describe current and planned methods of training tasks. Possible methods of training include media that offers some degree of success in training the listed tasks.

**5.14**

4. Justification of need: The most important part of the TDNS is the evaluation of the ability of current and planned capabilities to fill the training deficiency. Describe the deficiency in the current training program. Describe the skills needed and how the device meets this need. Discuss skill criticality and the importance of the skill to the training program for the MOS. Consider how the lack of skill will impact combined arms operations. Describe the device effectiveness, cost savings, maintenance avoidance, etc. State the rationale used in the media selection process.

5. Constraints: Identify key conditions for satisfying the need, e.g., timeframe, priority, size, resource, logistics, safety, and manpower implications.

6. Estimated number of devices required: State the estimated quantity of devices needed by FY, if the program spans several years.

Annex - A Preliminary TDS.

Checklist  
(TDNS)

	YES	NO(N/A)
1. Training Device Need		
a. Has a preliminary TDS been conducted?	_____	_____
b. Is the TDNS in the correct format with the TDS as annex A attached?	_____	_____
c. Is the training deficiency described in terms of training capabilities required?	_____	_____
d. Are all training tasks identified?	_____	_____
e. Has the proponent staffed the completed TDNS with its preliminary TDS with other TRADOC schools, as appropriate?	_____	_____
f. Has the proponent forwarded the TDNS with preliminary TDS through its Integrating Center to ATSC?	_____	_____
2. Target audience description		
a. Are the capabilities of the individual to be trained fully delineated?	_____	_____
b. Are the individuals to be trained Active Components or Reserve Components?	_____	_____
3. Current and planned training strategies		
a. Are current and planned methods of training tasks adequately described?	_____	_____
b. Do the training methods described apply to both AC and RC?	_____	_____
4. Justification of need		
a. Is the deficiency in the current training fully described?	_____	_____
b. Are the skills needed completely described?	_____	_____

5.15

Checklist  
(TDNS)

c. Is how the device meets the need adequately described? \_\_\_\_\_

d. Is the impact on combined arms operations due to the lack of the required skill addressed? \_\_\_\_\_

e. Is device effectiveness, cost savings, maintenance avoidance, etc., adequately addressed? \_\_\_\_\_

f. Is the rationale used in the media selection process included? \_\_\_\_\_

g. Will the training device overcome environmental constraints in the current program? \_\_\_\_\_

5. Constraints

a. Are key conditions for satisfying the need completely identified? \_\_\_\_\_

b. Are limitations to the device fully identified? \_\_\_\_\_

6. Estimated number of devices required

a. Is the estimated quantity of devices per fiscal year identified? \_\_\_\_\_

b. Is a breakout of quantities required, by unit, included? \_\_\_\_\_



TDR FORMAT

1. Title.

- a. Give a descriptive title for the program.
- b. CARDS reference number (leave blank - provided by DCSOPS).

2. Need. State what is needed. Briefly describe the operational or training deficiency that generated the need for the device.

3. IOC. State the timeframe in which the device will be required for training. Use FY and Quarter.

4. Operational and Organizational Plan (O&O Plan). In a brief paragraph, state--

- a. How the equipment will be used.
- b. Geographical areas of use.
- c. Weather and climatological factors to be considered.
- d. The type of units that will use and support the equipment.

5. Essential Characteristics. Describe only main operational features of the system. Included are health, safety, human factors engineering requirements, and reliability, availability, and maintainability (RAM). Express performance and reliability characteristics in bands of performance. Those which are not suitable for banding will be stated as single values. During development, commercial, other Service, NATO, or other allied nation characteristics of existing or programed systems are considered for inclusion with a view toward establishing a basis for interoperability, co-production, or standardization. Bands of performance are flexible enough to consider for inclusion with a view toward establishing a basis for interoperability, co-production, or standardization. Bands of performance are flexible enough to consider competing systems of other Services or allied nations. Stated bands of performance or single value characteristics are adjusted only after the training and materiel developers agree that changes are necessary. DA DCSOPS approves changes for documents previously approved by DA DCSOPS. The requirements and provisions for the following must be considered:

- a. Compatibility with existing devices or systems.
- b. Continuity of operations (CONOPS).
- c. Security.
- d. RAM-derived from mission performance parameters.
- e. Standardization.
- f. Communications.

5.17

**5.18**

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## TDR Format

- g. Adverse weather and reduced visibility conditions.
- h. Transportability requirements.
- i. Preplanned Product Improvements (P3I).

6. Technical Assessment. Include a brief paragraph about the technical effort required. Address major areas for full-scale development in terms of scope, technical approach, and associated risks in high, medium, low, or similar categories. For NDI items, briefly outline planned market survey effort and/or military suitability evaluations.

7. System Support Assessment. Briefly describe the system support plan. The system support package will be available for testing during IOTE and validated prior to IOC.

8. MANPRINT Assessment.

a. Manpower/Force Structure Assessment. Estimate manpower requirements and authorizations per system, per unit, and total Army (Active, ARNG, USAR). Include an assessment of alternatives to reduce manpower requirements by component. If increases in force structure are required, then a tradeoff analysis must be conducted.

b. Personnel Assessment. Identify personnel constraints by operator, maintainer, repairer, and other support MOS. Describe the aptitude of the intended operator, maintainer, and repairer. An analysis must be conducted to assess any changes to the MOS structure or MOS workload. A summary of the relationship of soldier performance to measures of system effectiveness should be included.

c. Training Assessment. Discuss the overall training strategy. New Equipment Training (NET), operator and maintenance personnel training, and technical manuals and training materials requirements will be stated in terms of needs for both institution and unit training levels.

d. Human Factors Engineering (HFE). Identify the need for a HFE analysis and address the HFE considerations and constraints.

e. System Safety. Address system safety requirements and safety considerations and constraints.

f. Health Hazard Assessment (HHA). Address health hazard requirements and health hazard considerations and constraints.

5.19

## TDR Format

## 9. Standardization and Interoperability.

a. Discuss other Service, foreign nation interest in the program identified during staffing. Identify similar programs contemplated by other Services or allied nations.

b. Describe standardization, interoperability, or commonality constraints that apply because of other Army, allied nations, or other Service missions, tasks, relationships, or systems.

10. Life-Cycle Cost Assessment. This assessment will be expressed in terms of the life-cycle phases of development, production, military construction, fielding, and sustainment costs (costs will include software costs). Also, include the design-to-cost goals. This information is contained in annex A.

11. Milestone Schedule. Provide a listing of significant events with dates by FY and Quarter to occur between approval of document and the IOC date. The following should be included:

- a. TDR approval.
- b. MDR I-II (IPR or ASARC/JRMB).
- c. TT/IOTE begin and end (if required).
- d. MDR III (IPR or ASARC/JRMB).
- e. Initial Operational Capability (IOC).

Appendix 1 - Rationale. Support various characteristics stated in the TDR. This provides an audit trail and rationale for determining how the characteristics were derived.

Appendix 2 - TDS. Provide an executive summary of the TDS.

Appendix 3 - RAM Rationale. Support the stated RAM characteristics with a logical argument that begins with the task frequency, conditions, and standards described and analyzed in the MAA. This provides an audit trail and rationale for determining how the characteristics were derived.

## TDR Format

Appendix 4 - Operational Mode Summary/Mission Profile.

Annex A - Life-Cycle Cost Assessment.

Annex B - TDNS.

Annex C - Coordination. List all MACOMS, other Services, allied nations, and activities in which coordination was effected. Provide full rationale for non acceptance of comments.

## NOTE

Forward the BOIP/QQPRI with the TDR when sent to the approval authority for approval. When the BOIP/QQPRI are not submitted, the transmittal letter must contain a statement of the projected submission date.

5.21

Checklist  
(TDR)

	YES	NO(N/A)
1. Title.		
a. Does the program have a descriptive title?	_____	_____
b. Has a blank space been provided for CARDS reference number?	_____	_____
2. Need.		
a. Is it clearly stated?	_____	_____
b. Is the operational or training deficiency that generated the need for the device accurately described?	_____	_____
c. Does this paragraph track with the TDNS?	_____	_____
3. IOC.		
a. Is the timeframe stated by FY and Quarter?	_____	_____
b. Is the timeframe realistic?	_____	_____
4. O&O Plan.		
a. Does the proposed training device fit into the training program.	_____	_____
b. Is it stated how often the device should be used to maintain proficiency?	_____	_____
c. Does it state where the device will be used?	_____	_____
d. Does it address which type units will use and support the proposed device (RC/AC)?	_____	_____

Checklist  
(TDR)

5. Essential Characteristics.

a. Are Characteristics expressed in bands of performance (e.g. must enable tank gunners to acquire and engage 10 of 12 targets presented)? \_\_\_\_\_

b. Have the requirements for the following characteristics been considered: \_\_\_\_\_

(1) Compatibility with existing devices or systems? \_\_\_\_\_

(2) CONOPS? \_\_\_\_\_

(3) Security? \_\_\_\_\_

(4) RAM (performance characteristics must be stated as single values in terms of operational requirements (e.g. must be operationally available at least 90 percent of the training day)? \_\_\_\_\_

(5) Standardization? \_\_\_\_\_

(6) Communications? \_\_\_\_\_

(7) Operational environmental considerations? \_\_\_\_\_

(8) Transportability? \_\_\_\_\_

(9) P3I? \_\_\_\_\_

c. Have the characteristics from existing or programmed systems of commercial, other Services, NATO, or other allied nations been considered? \_\_\_\_\_

6. Technical Assessment.

a. Is the degree of technical risk specifically stated? \_\_\_\_\_

b. Has a technical approach for development been addressed? \_\_\_\_\_

c. Is the scope of development addressed? \_\_\_\_\_

5.23

Checklist  
(TDR)

7. System Support Assessment.

a. Does the System Support Plan consider:

(1) Where the device should be maintained (installation Director of Industrial Operations (DIO), Training and Audiovisual Support Center (TASC), Table of Organization Equipment (TOE) unit, etc.)? \_\_\_\_\_

(2) What are the capabilities of potential responsible maintenance organizations (installation DIO, TASC, TOE unit, etc.)? \_\_\_\_\_

(3) What components of the device that may have to be drawn from/maintained by other activities (i.e., pyrotechnics; petroleum, oil and lubricants (POL); etc.)? \_\_\_\_\_

(4) Software maintenance/support requirements? \_\_\_\_\_

(5) Contractor Logistical Support (CLS)? \_\_\_\_\_

(6) Army Stockage List (ASL)? \_\_\_\_\_

(7) Prescribed Load List (PLL)? \_\_\_\_\_

(8) Technical Manuals (TM)? \_\_\_\_\_

8. MANPRINT Assessment.

a. Manpower/Force Structure Assessment:

(1) Are manpower requirements and authorizations adequately addressed (i.e., per system, per unit, and total Army (AC/RC)? \_\_\_\_\_

(2) Have alternatives to reduce manpower requirements by component been included? \_\_\_\_\_

(3) Has a tradeoff analysis been conducted to support an increase in force structure? \_\_\_\_\_

5.24



Checklist  
(TDR)

b. Personnel Assessment.

(1) Have all personnel constraints been identified (i.e., by operator, maintainer, repairer, and other support MOS)?

\_\_\_\_\_

(2) Have the aptitudes of intended personnel been accurately described?

\_\_\_\_\_

(3) Has an analysis been conducted to assess any changes to the MOS structure or MOS workload?

\_\_\_\_\_

(4) Have measures of system effectiveness based upon soldier performance been included?

\_\_\_\_\_

c. Training Assessment.

(1) Is the overall training plan/strategy stated in terms of needs for both institution and unit (AC/RC) training levels?

\_\_\_\_\_

(2) Does the Training Plan consider:

(a) New Equipment Training (NET)?

\_\_\_\_\_

(b) Instructor/Key Personnel Training (IKPT)?

\_\_\_\_\_

(c) Extension Training Materials (ETM)?

\_\_\_\_\_

(d) Technical Manuals (TM)?

\_\_\_\_\_

(e) Contractor responsibilities?

\_\_\_\_\_

d. Human Factors Engineering (HFE).

(1) Has the need for an HFE analysis been identified?

\_\_\_\_\_

(2) Have HFE considerations and constraints been adequately addressed?

\_\_\_\_\_

e. System Safety.

(1) Have system safety requirements been identified?

\_\_\_\_\_

5.25

Checklist  
(TDR)

(2) Have safety considerations and constraints been addressed? \_\_\_\_\_

f. Health Hazard Assessment (HHA).

(1) Have health hazard requirements been identified? \_\_\_\_\_

(2) Have health hazard considerations and constraints been adequately addressed? \_\_\_\_\_

9. Standardization and Interoperability.

a. Have similar programs contemplated by other Services or allied nations been identified? \_\_\_\_\_

b. Have applicable standardization, interoperability, and commonality constraints of similar programs been described? \_\_\_\_\_

10. Life-Cycle Cost Assessment. Is the life-cycle cost assessment attached at annex A? \_\_\_\_\_

11. Milestone Schedule. Does a list of significant events with dates by FY and Quarter include as a minimum the following:

a. TDR approval? \_\_\_\_\_

b. MDR I-II (IPR or ASARC/JRMB)? \_\_\_\_\_

c. TT/IOTE begin and end (if required)? \_\_\_\_\_

d. MDR III (IPR or ASARC/JRMB)? \_\_\_\_\_

e. IOC? \_\_\_\_\_

12. Appendices/Annexes. Are the following attached:

a. Appendix 1 - Rationale? \_\_\_\_\_

b. Appendix 2 - TDS? \_\_\_\_\_

c. Appendix 3 - RAM Rationale? \_\_\_\_\_

d. Appendix 4 - Operational Mode Summary/  
Mission Profile? \_\_\_\_\_

## TRAINING DEVICE REQUIREMENTS

5

### Checklist (TDR)

- e. Annex A - Life Cycle Cost Assessment?      ☐      ☐
- f. Annex B - TDNS?      ☐      ☐
- g. Annex C - Coordination?      ☐      ☐

5.27

Process Outline  
(Army-wide CTDR)

1. The proponent prepares a CTDR in the format at page 5.33 when a training deficiency/need can be satisfied by a commercially available device and is supported by a preliminary TDS attached to the CTDR when forwarded for approval.

NOTE

A CTDR is used to support the procurement of a training device that is immediately available from commercial sources to meet a training deficiency/need. Research, development, test, and evaluation (RDTE) funds cannot be used to support CTDR procurements. Training devices procured under a CTDR will not be type classified.

2. The proponent staffs the CTDR internally and with other interested TRADOC schools for comments. Once the staffing is complete, the proponent forwards the CTDR through its Integrating Center to ATSC. Concurrently, the proponent forwards information copies of the CTDR to the other two Integrating Centers.

5.28

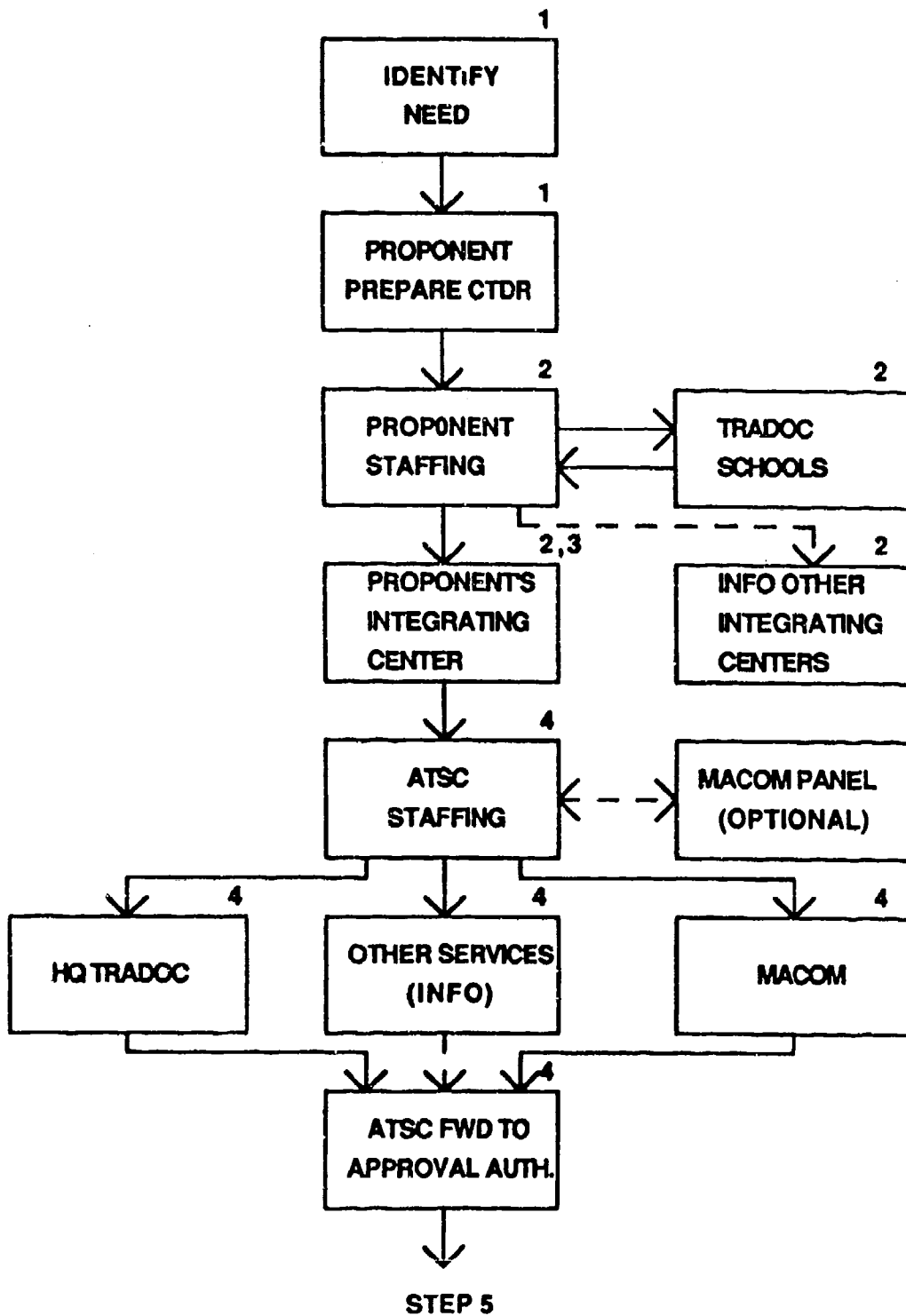
3. The Integrating Center, assuming concurrence, will forward the CTDR with its supporting TDS to the Army Training Support Center (ATSC) (ATIC-DMO).

4. The CTDR will be staffed by ATSC internally, to HQ TRADOC and to appropriate MACOM and other Services as required (NO suspense date will be set on other Services). Assuming concurrences, ATSC will forward the CTDR to the appropriate approving authority.

NOTE

If the total procurement is under \$15 million, the CTDR will be approved by HQ TRADOC (DCST). Between \$15 million and \$500 million, it will be jointly approved by AMC and TRADOC. Over \$500 million by HQDA. Non-concurrence between AMC or TRADOC will be resolved by HQDA.

**Process Outline  
(Armywide CTDR)**



5.29

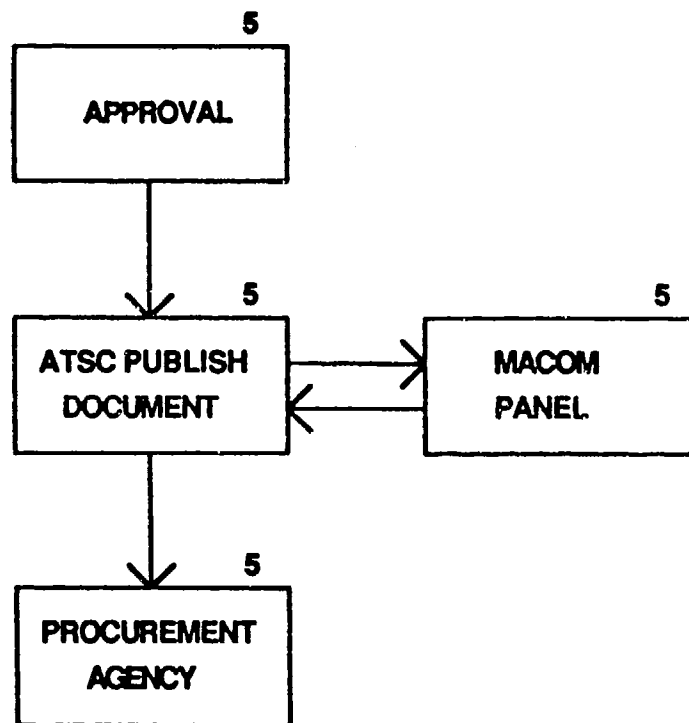
Process Outline  
(Army-wide CTDR)

5. Once a CTDR has been approved it will be published by ATSC (ATIC-DMO) and forwarded to the appropriate procurement agency (normally PM TRADE for items costing over \$5,000 each and ATSC for items under \$5,000). However, before funds can be made available to support actual procurement, the CTDR must be prioritized through the MACOM Panel Prioritization Process in the same sense as with a TDR item (see step 5).

NOTE

In many cases, a CTDR may be presented before the MACOM Panel for prioritization before the actual staffing is complete and the document is approved.

**Process Outline  
(Armywide CTDR)**



5.31

Process Outline  
(MACOM-Peculiar CTDR)

1. A MACOM prepares a CTDR in the format at page 5.33 when a training deficiency/need can be satisfied by a commercially available device. The completed CTDR is forwarded to ATSC (ATIC-DMO) for staffing and subsequent approval by the appropriate approving authority, assuming concurrences.

NOTE

If the total procurement is less than \$5 million then the MACOM is the approving authority with AMC and TRADOC concurrence. From \$5 to \$500 million AMC and TRADOC are the joint approving authority. Above \$500 million HQDA. Funding to support a MACOM peculiar procurement is the responsibility of the MACOM.

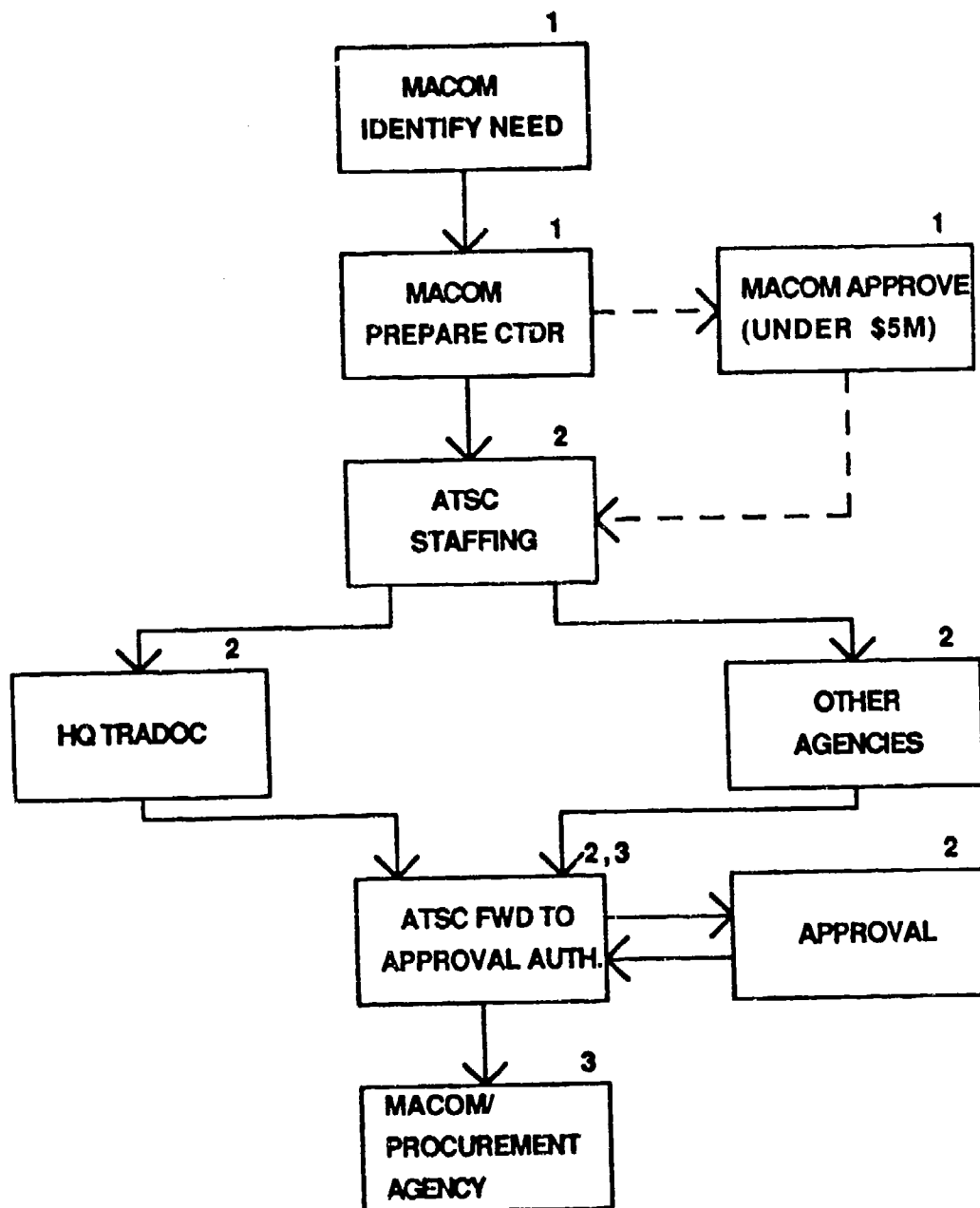
5.32

2. The CTDR is staffed by ATSC internally, to HQ TRADOC and other appropriate agencies. Upon completion of staffing and assuming concurrences, ATSC forwards the document to the appropriate approving authority.

3. Once approved ATSC publishes the approved document and forwards the CTDR to the procuring agency (normally the MACOM or PM TRADE on behalf of the MACOM).



**Process Outline  
(MACOM Peculiar CTDR)**



5.33

## CTDR Format

1. Title of Item. (Short title; National Stock Number (NSN), if appropriate.
2. Category.
  - a. Army-wide or MACOM-peculiar.
  - b. \$5000 and over or less than \$5000.
3. Currently on hand. The quantity of same or similar item performing the same function; authorized and on hand.
4. Justification. Justify why the item is needed and what training/functional improvement is expected. State how item will support training (address in terms of soldier manual tasks). For an Army-wide requirement attach the TDS as annex A.
5. Characteristics. Describe the item. Include essential performance characteristics, available specifications, and literature.
6. Distribution. Give proposed basis of issue. Include type of unit and number of each device required. Attach the Distribution Plan as annex A or B, as appropriate.
7. Source. Identify commercial sources, e.g., GSA schedule.
8. Cost.
  - a. Known or estimated cost per item.
  - b. Total number of items to be procured.
  - c. Total procurement cost (per FY if procurement covers multiple years) and associated life cycle support costs.
9. Date required. State when equipment is required and impact if not received when requested.
10. Support organizations. Identify TASC or organizational element that will store, loan or issue, account for, and provide maintenance support. Address contractor logistical support (CLS), if required.

5.34

CTDR Format

11. Impacts.

a. MCA or other construction needed to support this device to include estimated funding.

b. Specify personnel requirements to include annual maintenance manhours per device, dedicated operator requirements, and operation and supply accountability in addition to current authorizations.

c. Statement on whether this device replaces or supports any other device.

d. Special transportation requirements/constraints.

12. Spare parts. List spare parts required and identify associated funding.

13. Special Tools. List special tools required and identify associated funding.

14. Funding summary. Identify funding (best cost available) to be used to acquire and support the requested device. Consolidate costs profile from items 8,11,12, and 13 in the following format:

FY\_\_\_\_FY\_\_\_\_FY\_\_\_\_FY\_\_\_\_FY\_\_\_\_

Investment(para 8)\*  
O&S (para 12 & 13)  
MILCON (para 11)

\* - Procurement should show number of devices/total costs per FY, e.g., 8/\$40.6K under a specific FY indicates the 8 devices costing a total of \$40.6K should be procured in that FY.

Annex A - TDS (Army-wide only)

Annex B - Distribution Plan

5.35

Checklist  
(CTDR)

YES NO(N/A)

## 1. Title of item.

a. Is the CTDR in the format at page? ☐ ☐b. Does the title include a NSN, if appropriate? ☐ ☐

## 2. Category.

a. Is the category of the CTDR correct? ☐ ☐b. Is the item cost correct? ☐ ☐

## 3. Currently on hand.

a. Are there any same or similar items authorized and on hand that currently perform the same function? ☐ ☐b. Is there effectiveness of the device expressed in terms of which soldier manual tasks are satisfied? ☐ ☐c. Is the TDS attached as annex A for an Army-wide requirement? ☐ ☐

## 5. Characteristics.

a. Is the device description complete to include essential performance characteristics and available specifications? ☐ ☐b. Is all available literature included? ☐ ☐

## 6. Distribution.

a. Has the proposed basis of issue been included? ☐ ☐b. Are the types of units to use the devices identified? ☐ ☐

5.36

Checklist  
(CTDR)

c. Is the total number of devices required included? \_\_\_\_\_

d. Is the Distribution Plan attached as annex A or B, as appropriate? \_\_\_\_\_

7. Source.

a. Are commercial sources identified? \_\_\_\_\_

b. Is a GSA schedule included? \_\_\_\_\_

8. Cost.

a. Are the costs shown as per item cost and total procurement costs? \_\_\_\_\_

b. If the procurement covers multiple years are the costs broken down by fiscal years? \_\_\_\_\_

c. Are the costs identified as known or estimated costs? \_\_\_\_\_

d. Is the total number of items to be procured broken down to show AC/RC allocations? \_\_\_\_\_

9. Date required.

a. Are the required dates for operational capability indicated? \_\_\_\_\_

b. Are impacts of missing the required dates fully enumerated? \_\_\_\_\_

10. Support organizations.

a. Have the elements required for support of the device been identified to include storage, loan or issue, accountability, and maintenance? \_\_\_\_\_

b. Will contractor logistical support be required? \_\_\_\_\_

11. Impacts. Are cost and logistical impacts addressed according to the items listed on the document format? \_\_\_\_\_

5.37

Checklist  
(CTDR)

12. Spare parts.

a. Is a list of all spare parts required available? \_\_\_\_\_

b. Is all associated funding for required spare parts identified? \_\_\_\_\_

13. Special Tools.

a. Is a list of all special tools associated with the non-contractor logistical support available? \_\_\_\_\_

b. Is all associated funding for required special tools identified? \_\_\_\_\_

5.38

14. Funding Summary. Is the funding summary correct according to the CTDR format? \_\_\_\_\_

15. Is the TDS attached at annex A (Army-wide CTDR)? \_\_\_\_\_

16. Is the Distribution Plan attached at annex B (Army-wide) or annex A (MACOM-peculiar)? \_\_\_\_\_

17. Was the Army-wide CTDR forwarded by the proponent through its integrating center to ATSC for required staffing? \_\_\_\_\_

18. Have changes generated from staffings been incorporated in the document? \_\_\_\_\_

19. Based on the category of the CTDR has the appropriate approval authority given final approval? \_\_\_\_\_

## **Chapter 6**

# **RELIABILITY, AVAILABILITY, AND MAINTAINABILITY (RAM)**

## Chapter Guide

The Reliability, Availability, and Maintainability (RAM) Rationale Report (RRR) is a separate entity from the requirements document (i.e., Required Operational Capability (ROC), Joint Service Operational Requirement (JSOR), Training Device Requirement (TDR) and must be approved before the requirements document is submitted for approval. The RRR will contain an executive summary which will be extracted to serve as the RAM Rationale Appendix to accompany the requirements document.

Detailed guidance on the preparation of the RRR is provided in TRADOC/AMC Pam 70-11 (RRR Handbook).

## RRR Responsibilities

- TRADOC: - Chair RAM Joint Working Group (JWG)  
- Prepare and staff RRR  
- Distribute approved RRR
- AMC: - Participate in RAM JWG  
- Provide RAM data for Baseline Comparison System (BCS)  
Independent Evaluators - Participate in RAM JWG

6.1

## Chapter Proponent Offices

TRADOC: LOGC, ATCL-MRP  
AMC: AMCQA-E

## References

The following documents specify procedures used to prepare, review, and approve the RRR.

DA: AR 702-3  
AMC: AMC Suppl 1 to AR 702-3  
TRADOC: TRADOC Suppl 1 to AR 702-3  
TRADOC/AMC Pam 70-11



## Time Constraints

The process of RRR preparation, review, and approval, from initiation until it is forwarded to the appropriate approval authority for review and approval, is time-constrained by a series of established suspense dates. These time constraints and suspense dates are detailed below. Recognizing that some systems do not require 34 weeks for development of the RRR, the following time line is intended as an example, but in no case should staffing require more than 34 weeks.

The objective time line for staffing the RRR is as follows (numbers are weeks after proponent school RRR start date and indicate when the specified event should be initiated). Each event must be completed and available for the follow-on action as specified below and as displayed in the Process Outline on page 6.3.

Weeks*	RRR Staffing	Event
ASAP		
26	0	Combat Developer (CD) Proponent School initiates preparation of Strawman RRR
27	1	CBTDEV Proponent school develops draft Operational Mode Summary (OMS)/Mission Profile (MP) and FD/SC
27	1	MATDEV, developmental independent evaluator (DIE), operational independent evaluator (OIE) and log oriented school (LOS) develop input to RRR
30	4	MATDEV develops baseline comparison system (BCS)
32	6	CBTDEV proponent school conducts RAM JWG
33	7	CBTDEV proponent school consolidates results of RAM JWG and finalizes draft RRR with MATDEV and DIE input
36	10	CBTDEV proponent school staffs draft RRR for review and comment
	upon receipt	MATDEV, DIE, OIE, LOS, LOGC, and LEA review & comment on draft RRR
42	16	CBTDEV proponent school incorporates/resolves comments into draft RRR
51	25	CBTDEV proponent school revises draft RRR and submits final RRR for approval
	upon receipt	OTEA, AMSAA, AMC, & LOGC (for major systems) or TECOM, AMC, & LOGC (for all others) approve RRR
57	31	OTEA, AMSAA, AMC, & LOGC or TECOM, AMC & LOGC forward approved RRR to CD proponent school
	upon receipt	CBTDEV proponent school removes approved Executive Summary and attaches as appendix 3 to requirements document
60	than week 34	
*Week "0" coincides with O&O Plan approval.		

PROCESS OUTLINE  
(NORMAL PROCEDURE)

1. After the Operational and Organizational Plan (O&O Plan) is approved, the CBTDEV proponent school sends a message to the materiel developer (MATDEV), DIE, and LOS requesting input to the RRR and scheduling a RAM JWG, usually no sooner than 45 days from the date of the message. A sample message is on page 6.7.

WARNING

To avoid delaying approval of the requirements document this message should be sent out eight months before the target date for approval of the requirements document. If the target approval date for the requirements document is less than eight months away the expedited staffing procedures should be used.

2. The CBTDEV updates the operational mode summary/mission profile (OMS/MP) in the O&O Plan and develops a draft failure definition and scoring criteria (FD/SC) before the RAM JWG is held. The CBTDEV will forward the OMS/MP and FD/SC portions to the MATDEV for use in developing the baseline comparison system (BCS). A sample forwarding letter is provided on page 6.5. Concurrently, the MATDEV develops input for the RRR.

3. A RAM JWG is held. The RAM JWG consists of the CBTDEV, LOS, MATDEV (i.e., representatives from Product Assurance Directorate, PM, ILS Office, and Maintenance Directorate, etc.), operational independent evaluator and development independent evaluator. The CBTDEV will chair the meeting. The RAM JWG will assure interagency communication throughout the development of the RAM requirements. When appropriate, the meeting may be held by telephone or correspondence. However, a conventional meeting of the RAM JWG will be held if any member objects to a meeting using telephone or correspondence. The LOGC can provide technical assistance in the preparation of the RRR by hosting the RAM JWG. TRADOC schools desiring this service should call AUTOVON 687-3610/3347.

4. The CBTDEV will finalize the draft RRR with input from the MATDEV, LOS, and independent evaluators. The final input is staffed for review and comments. A sample forwarding letter is provided on page 6.6. A follow-up message will be sent to any organization failing to respond. A sample follow-up message is provided on page 6.7. Based on this coordination, the CBTDEV revises the draft into a final RRR and submits the RRR for approval/disapproval. A sample forwarding letter is provided on page 6.14.

5. The LOGC will forward the approved RRR to the CBTDEV. The CBTDEV proponent will remove the approved executive summary from the RRR and attach it to the requirements document as appendix 3.

NOTE

The executive summary must have approval signatures of OTEA, AMSAA, HQ AMC and LOGC for major and designated acquisition programs (DAP) and from TECOM, HQ AMC and LOGC for all others. Approving agencies may be invited to attend RAM JWG to help expedite approval of the RRR.

SAMPLE DRAFT FORWARDING LETTER FOR  
OMS/MP AND FD/SC

(letterhead)

(office symbol)

(date)

SUBJECT: Draft Operational Mode Summary/Mission Profile (OMS/MP)  
and Failure Definition/Scoring Criteria (FD/SC) for (name of  
system)

Commander(AMC Commodity Command)

1. Reference message (initial JWG message from CD proponent  
school).

2. The attached draft OMS/MP and FD/SC is forwarded for your use  
to determine the reliability, availability and maintainability  
(RAM) for the baseline comparison system (SCS) for the (name of  
system).

3. These areas will be discussed at the RAM JWG announced in  
reference 1 above.

6.5

4. Point of Contact is (name and telephone number of action  
officer).

FOR THE COMMANDER:

Encl

(authorized signature block)

CF:

CDR, OTEA, ATTN: CSTE-TS-R  
Development Independent Evaluator (AMSAA, AMXSY-R or TECOM,  
AMSTE-AD-R)  
Logistics Oriented School  
CDR, USALOGC, ATTN: ATCL-M  
CDR, AMC, ATTN: AMCQA-S  
CDR, LEA, ATTN: DALO-LEI

SAMPLE DRAFT FORWARDING LETTER FOR COMMENTS ON  
INPUT TO RAM RATIONALE REPORT  
(Letterhead)

(office symbol)

(date)

SUBJECT: Draft RAM Rationale Report for (name of system) TRADOC  
ACN

SEE DISTRIBUTION

1. Enclosure 1 contains the draft RAM Rationale Report for (name of system). Request addressees review and provide DA 2028 comments on Enclosure 1. Request your comments be provided to (combat developer proponent school) with a copy furnished to each addressee NLT \_\_\_\_\_ (suspense should be 30-45 days from the date of the letter).

2. Point of Contact for this action is (action officer's name, AUTOVON number).

**6.6**

FOR THE COMMANDER:

Enclosure

DISTRIBUTION:

Material Developer

OTEA (appropriate evaluation division for major and designated acquisition programs only)

Development Independent Evaluator (AMSAA, AMXSU-R or TECOM, AMSTE-AD-R)

Logistics Oriented School

HQ AMC, ATTN: AMCQA-S

CDR LOGC, ATTN: ATCL-M

CF:

CDR, LEA, ATTN: DALO-LEI

## SAMPLE FOLLOW-UP MESSAGE

FROM: Combat Developer Proponent School

TO: (those agencies not responding to request for comments)

INFO: Materiel Developer

OTEA (for major and designated acquisition programs only)

Development Independent Evaluator (AMXAA, AMXSY-R or TECOM,

AMSTE-AD-R)

Logistics Oriented School

HQ AMC, ATTN: AMCQA-S

CDR USALOGC, ATTN: ATCL-M

CDR LFA, DALO-LEI

CDR OTEA CSTE-CS (for non-major systems only)

QQQQ

UNCLAS

SUBJECT: DRAFT RAM RATIONALE REPORT (RRR) FOR (name of system)  
TRADOC ACN

6.7

A. REF LETTER, (refer to original letter of transmittal requesting comments)

1. REF A REQUESTED COMMENTS BE PROVIDED NLT (original suspense date). AS OF (7 days after suspense date) YOUR COMMENTS HAVE NOT ARRIVED. FAILURE TO RESPOND COULD HAVE A NEGATIVE IMPACT ON THE REQUIREMENTS DOCUMENT FOR THE SUBJECT SYSTEM.

2. COMMENTS MUST BE RECEIVED IN ORDER TO FINALIZE RRR FOR SUBMISSION FOR APPROVAL WITHIN THE TIME CONSTRAINTS IMPOSED FOR THE STREAMLINED ACQUISITION PROCESS.

3. POC (name and telephone number of action officer).

SAMPLE DRAFT FORWARDING LETTER FOR APPROVAL/DISAPPROVAL OF RAM  
RATIONALE REPORT

(letterhead)

(office symbol)

(date)

SUBJECT: RAM Rationale Report (RRR) for (name of system)

IN TURN:

Commander, OTEA, ATTN: (appropriate evaluation division for  
major and DAP only) S: (15 days from date of  
letter)

Development Independent Evaluator (AMSAA, AMSY-R or TECOM, AMSTE-  
AD-R) S: (22 days from date of letter).

Commander, AMC, ATTN: AMCQA-S, 5001 Eisenhower Ave., Alexandria,  
VA S: (30 days from date of letter)

Commander, USALOGC, ATTN: AICL-M, Fort Lee, VA 23801-6000 S:  
(38 days from date of letter)

6.8

1. Attached RAM Rationale Report is forwarded for approval.

2. This RRR was prepared by (materiel developer/proponent combat  
developer school) at a RAM JWG which met on (date).

3. Request addressees provide an approval signature for the  
commander/(director if AMSAA addressee), in turn, on the  
executive summary of subject RRR. Request LOGC forward the  
approved document to (combat developer proponent school) in order  
to incorporate the approved executive summary into the  
requirements document.

4. POC is (name and telephone number of action officer).

FOR THE COMMANDER:

Enclosure

CF:

CDR, AMC, ATTN: AMCQA-S

DEVELOPMENT INDEPENDENT EVALUATOR (AMSAA, AMSY-R or TECOM,  
AMSTE-AD-R)

CDR, USALOGC, ATTN: AICL-M

NOTE: Original letter will be sent "IN TURN."

Copies will be furnished so that concurrent review can be  
accomplished by all addressees while awaiting the original  
letter.

PROCESS OUTLINE  
(EXPEDITED PROCEDURE)

1. After the Operational and Organizational Plan (O&O) is approved, the combat developer proponent school (CD) will prepare the draft RAM Rationale Report with input from the materiel developer (MD) and independent evaluators. The draft input is staffed for review and comments. A sample forwarding letter is provided on Page 7-12.

2. Comments will be transmitted to the CD by use of telecopier (data fax). Telephone number for data fax will be furnished by the CD in letter.

3. The CD will incorporate comments and update the operational mode summary/mission profile (OMS/MP) in the O&O plan and develop an updated failure definition and scoring criteria (FD/SC). The CD will forward the OMS/MP and FD/SC to the MD by first class mail or overnight letter. A sample forwarding letter is provided on page 7-13. The CD will finalize the draft RRR and staff for review and comment. A sample forwarding letter is provided on page 7-14. A follow-up message will be sent to any organization failing to respond. A sample follow-up message is provided on page 7-15. Based on this coordination, the CD will revise the draft into a final RRR and submit the RRR for approval/disapproval. A sample forwarding letter is provided on page 7-16.

6.9

4. The LOGC will forward the approved RRR to the CD. The CD will remove the approved executive summary from the RRR and attach it to the requirements document as Appendix 3.

NOTE

The use of this expedited procedure is restricted to extraordinary cases, i.e., directed acquisitions (when the program is accelerated by direction of higher authority) and requires approval from the command group at the center/school.



SAMPLE DRAFT FORWARDING LETTER FOR EXPEDITED COMMENT  
ON INPUT TO RAM RATIONALE REPORT

(letterhead)

(office symbol)

(date)

SUBJECT: Draft RAM Rationale Report for (name of System) TRADOC  
ACN\_\_\_

SEE DISTRIBUTION

1. Enclosure 1 contains the draft RAM Rationale Report for (name of system). Request addressees review and provide DA 2028 comments on Enclosure 1. Comments will be provided to (combat developer proponent school) via telecopy to AUTOVON (number) KLT (suspense should be appropriate in order to meet the requirement, but no longer than 21 days from the date of the letter). Failure to respond could have a negative impact on the requirements document for the subject system.

6.10

2. Point of Contact for this action is (action officer's name, AUTOVON number).

Enclosure

(authorized signature of  
Commander/Commandant of  
proponent school)

DISTRIBUTION:

Material Developer

OTEA (for major and designated acquisition programs only)  
Development Independent Evaluator (AMSAA, AMXSY-R or TECOM,  
AMSTE-AD-R)

Logistics Oriented School

HQ AMC, ATTN: AMCQA-S

CDR, LOGC, ATTN: ATCL-M

CF

CDR, LEA, ATTN: DALO-LEI

SAMPLE DRAFT FORWARDING LETTER FOR  
OMS/MP AND FD/SC  
(EXPEDITED PROCEDURE)

(letterhead)

(office symbol)

(date)

SUBJECT: Draft Operational Mode Summary/Mission Profile (OMS/MP)  
and Failure Definition/Scoring Criteria (FD/SC) for (name of  
system)

Commander(AMC Commodity Command)

1. Reference message (initial JWG message from CD proponent  
school).
2. The attached draft OMS/MP and FD/SC is forwarded for your use  
to determine the reliability, availability and maintainability  
(RAM) for the baseline comparison system (BCS) for the (name of  
system).
3. Point of Contact is (name and telephone number of action  
officer).

6.11

FOR THE COMMANDER:

Encl

CF:

CDR, OTEA, ATTN: (appropriate evaluation division)  
Development Independent Evaluator (AMSAA, AMXSY-R or TECOM,  
AMSTE-AD-R)  
Logistics Oriented School  
CDR, USALOGC, ATTN: ATCL-M  
CDR, AMC, ATTN: AMCQA-S  
CDR, LEA, ATTN: DALO-LEI

SAMPLE DRAFT FORWARDING LETTER FOR COMMENTS ON  
INPUT TO RAM RATIONALE REPORT  
(Letterhead)

(office symbol)

(date)

SUBJECT: Draft RAM Rationale Report for (name of system) TRADOC  
ACN

SEE DISTRIBUTION

1. Enclosure 1 contains the draft RAM Rationale Report for (name of system). Request addressees review and provide DA 2028 comments on Enclosure 1. Request your comments be provided to (combat developer proponent school) with a copy furnished to each addressee NLT \_\_\_\_\_ (suspense should be appropriate to meet the requirement, but no more than 30-45 days from the date of the letter).

2. Point of Contact for this action is (action officer's name, AUTOVON number).

**6.12**

FOR THE COMMANDER:

Enclosure

DISTRIBUTION:

Material Developer

OIEA (for major and designated acquisition programs only)

Development Independent Evaluator (AMSAA, AMXSU-R or TECOM, AMSTE-AD-R)

Logistics Oriented School

HQ AMC, ATTN: AMCQA-S

CDR LOGC, ATTN: ATCL-M

CF:

CDR, LEA, ATTN: DALO-LEA

SAMPLE FOLLOW-UP MESSAGE  
EXPEDITED PROCEDURE

FROM: Combat Developer Proponent School

TO: (those agencies not responding to request for comments;

INFO: Materiel Developer

OTEA (for major and designated acquisition programs only)

Development Independent Evaluator (AMXAA, AMXSY-R or TECOM,

AMSTE-AD-R)

Logistics Oriented School

HQ AMC, ATTN: AMCQA-S

CDR USALOGC, ATTN: ATCL-M

CDR IEA, DALO-LEI

CDR OTEA CSTE-CS (for non-major systems only)

QQQQ

UNCLAS

SUBJECT: DRAFT RAM RATIONALE REPORT (RRR) FOR (name of system)  
TRADOC ACN

6.13

A. REF LETTER, (refer to original letter of transmittal  
requesting comments;

1. REF A REQUESTED COMMENTS BE PROVIDED NLT (original suspense  
date). AS OF (7 days after suspense date) YOUR COMMENTS HAVE NOT  
ARRIVED. FAILURE TO RESPOND COULD HAVE A NEGATIVE IMPACT ON THE  
REQUIREMENTS DOCUMENT FOR THE SUBJECT SYSTEM.

2. COMMENTS MUST BE RECEIVED IN ORDER TO FINALIZE RRR FOR  
SUBMISSION FOR APPROVAL WITHIN THE TIME CONSTRAINTS IMPOSED FOR  
THE STREAMLINED ACQUISITION PROCESS.

3. COMMENTS WILL BE TRANSMITTED BY TELECOPY/DATA FAX TO AUTOVON  
(data fax number for CD proponent school) NLT (no more than 5  
days from release of message).

4. POC (name and telephone number of action officer).

SAMPLE DRAFT FORWARDING LETTER FOR APPROVAL/DISAPPROVAL OF RAM  
RATIONALE REPORT  
(EXPEDITED PROCEDURE)

(Letterhead)

(office symbol) (date)

SUBJECT: RAM Rationale Report (RRR) for (name of system)

IN TURN:

Commander, OTEA, ATTN: (appropriate evaluation division for major and DAP only) S: (15 days from date of letter)

Development Independent Evaluator (AMSAA, AMSY-R or TECOM, AMSTE-AD-R) S: (18 days from date of letter).

Commander, AMC, ATTN: AMCQA-S, 5001 Eisenhower Ave., Alexandria, VA S: (21 days from date of letter)

Commander, USALOGC, ATTN: ATCL-M, Fort Lee, VA 23801-6000 S: (24 days from date of letter)

## 6.14

1. Attached RAM Rationale Report is forwarded for approval.
2. This RRR was jointly prepared by (materiel developer/proponent combat developer school).
3. Request addressees provide an approval signature for the commander/(director if AMSAA addressee), in turn, on the executive summary of subject RRR. Request LOGC forward the approved document to (combat developer proponent school) in order to incorporate the approved executive summary into the requirements document.
4. POC is (name and telephone number of action officer).

FOR THE COMMANDER:

Enclosure

GP:

CDR, AMC, ATTN: AMCQA-S

DEVELOPMENT INDEPENDENT EVALUATOR (AMSAA, AMXSY-R or TECOM, AMSTE-AD-R)

CDR, USALOGC, ATTN: ATCL-M

## **Chapter 7**

### **ACQUISITION STRATEGY**

## Chapter Guide

An Acquisition Strategy (AS) is required for all Army materiel acquisition programs. It is the set of broad concepts that provides direction and control for the overall development and production effort. It addresses the entire acquisition cycle. The AS is formulated at the outset of development and is updated as required to span the life of the program from recognition of the need through the system's fielding and deployment. The AS maintains program continuity by providing a stable foundation upon which the development is constructed, while being flexible enough to accommodate necessary changes. It serves as a conceptual basis for formulating detailed strategies and functional plans (e.g., Integrated Logistic Support Plan (ILSP), Acquisition Plan (AP), Test and Evaluation Master Plan (TEMP), and System Safety Program Plan (SSPP). The level of detail in the AS increases as the program matures.

The AS is part of the Milestone Review Documentation (MRD). Development of an AS begins when documentation to obtain program initiation approval is prepared. Program initiation documentation is the Operational and Organizational (O&O) Plan or Justification for Major System New Start (JMSNS). The AS is updated in support of the decision to enter the Proof of Principle Phase. Approval to enter this phase constitutes approval of the AS. The AS is further updated in the Decision Coordinating Paper (DCP) in support of Milestone I/II and Milestone III. The general content of the AS addresses, as a minimum, 14 elements (see AS format, page 7.11). The Program Management Control System (PMCS) tracks the execution of the AS for programs that the HQDA (ODCSRDA) designates as PMCS programs.

7.1

## Responsibilities

Overall responsibility for the AS rests with AMC. When a Special Task Force (STF) or Special Study Group (SSG) has been convened to conduct the Requirements/Technology Base Activities, the PM-designee or the MATDEV component of the STF or SSG will prepare the AS. The group should include representatives from the following functional areas: procurement and production, test and evaluation, MANPRINT, ILS, production engineering, comptroller, product assurance, safety, health and environment, transportability, legal, Army command and control systems engineer, competition management or advocate, battlefield information system management, international cooperative R&D, intelligence and security. For programs that do not have an STF or SSG, an acquisition team will be convened to explore alternatives and to prepare the SCP, Concept Formulation Package (CFP), and TEMP.

## Chapter Proponent Offices

AMC: AMCDE-P

TRADOC: ATCD-E

## References

The following documents direct or influence the procedures used for the preparation, review, and approval of the AS.

DOD: DODD 4245.7-M

DA: AR 70-1

AR 71-9

AR 700-127

AR 1000-1

DSMC Acquisition Strategy Guide

7.2

Department of the Navy Pamphlet 6071 (NAVSO P-6071), Best Practices.

Also see the following chapters in the Handbook:

- Chapter 3 - Operational and Organizational Plan/Justification for Major System New Start
- 8 - Acquisition Plan
- 10 - Program Management Documents
- 11 - Manpower and Personnel Integration
- 12 - Integrated Logistic Support
- 13 - Test and Evaluation
- 15 - Materiel Acquisition Decision Process
- 19 - Program Management Control System



## Time Constraints

Development of an AS should begin when documentation to obtain program initiation approval is prepared. Subsequent revisions and updates of the AS support entry into the Proof of Principle Phase and are documented by the DCP to support the Milestone I/II and Milestone III decisions.

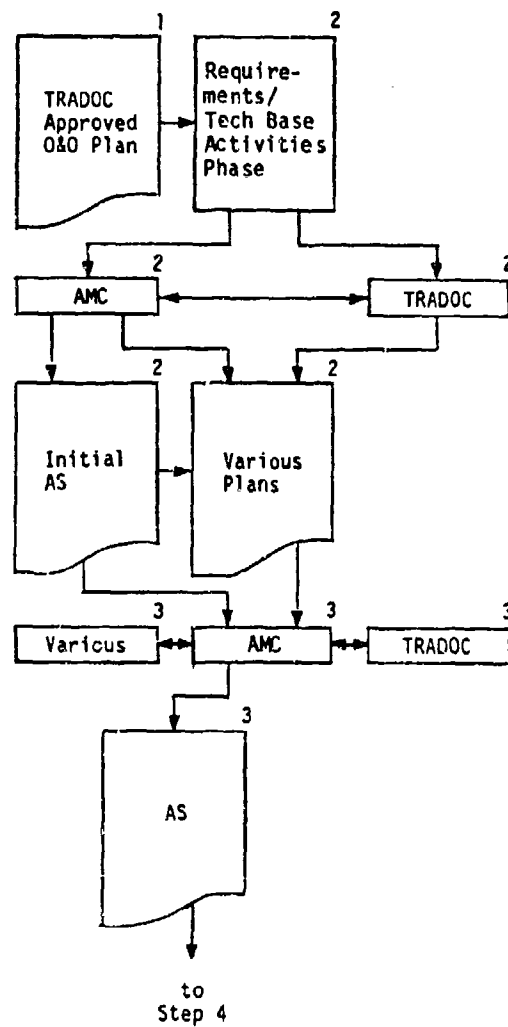
The detailed procedures for the development, review, and approval of the AS are described on the following pages in the form of descriptive paragraphs on the left-hand pages and corresponding flow charts on the facing pages.

Where appropriate, a "NOTE" has been added to the end of a paragraph to highlight options to the action called for in the paragraph or to provide some other insight into the action described.

## Process Outline

1. Preparation of the AS should begin when documentation to obtain program initiation approval is prepared. If a JMSNS is required (see chapter 3), it must contain a statement on the AS.
2. The initial AS is prepared by AMC, in coordination with the acquisition team, during the Requirements/Technology Base Activities Phase. Initial versions of various plans are developed by AMC and TRADOC in harmony with the developing AS. These include the ILSP, AP, TEMP, and SSPP.
3. During the continuation of Requirements/Technology Base Activities, AMC, in coordination with TRADOC and the logistician, tester/evaluator, trainer, etc., expands the initial AS. The AS is reviewed and approved by the Materiel Acquisition Review Board (MARB) prior to entry into the Proof of Principle Phase. The required format for the AS is on page 7.11.

## Process Outline



7.5

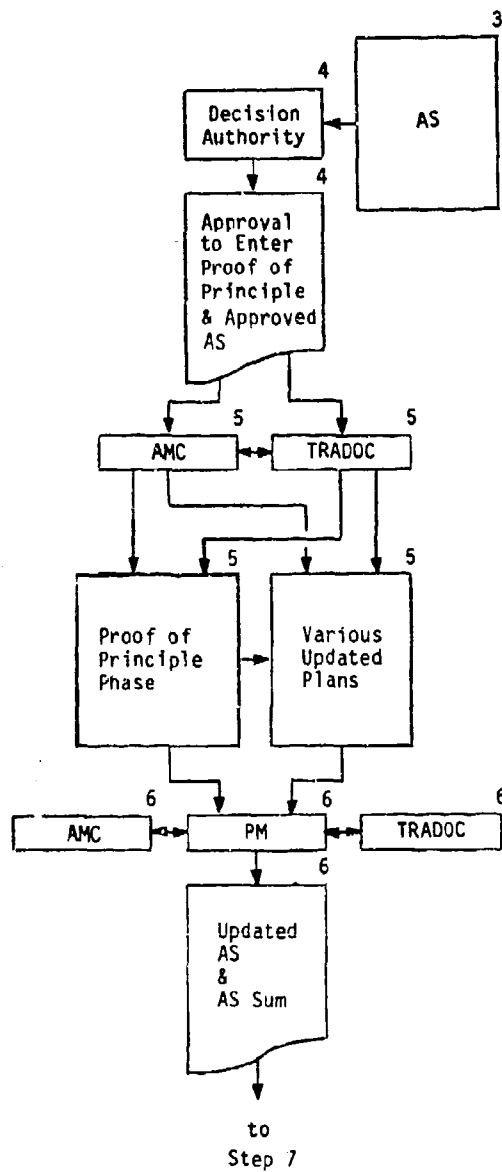
## Process Outline

4. Approval of the decision to enter the Proof of Principle Phase constitutes approval of the AS.

5. The AS forms the basis for development, by the organizational elements involved, of individual plans for the various parts of the program. The AS is used to update or develop plans such as the ILSP, AP, Individual and Collective Training Plan (ICTP), TEMP, the Basis of Issue Plan (BOIP), Qualitative and Quantitative Personnel Requirements Information (QQPRI), SSPP, and others.

6. The PM updates the AS for the next milestone based on progress made in the development program. The PM assesses and compares the actual conduct of his program with the approved AS. He explains discrepancies and recommends solutions to the discrepancies or revisions to the AS.

## Process Outline



7.7

## Process Outline

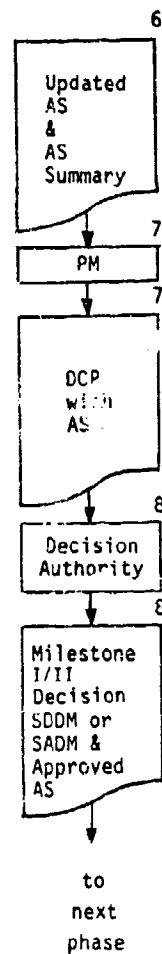
7. The updated AS and summary are incorporated into milestone review documentation. The summary becomes section IX of the DCP and the AS becomes annex F to the DCP. If required by the decision authority, expansion of the AS summary contained in the DCP may be provided in the Integrated Program Summary (IPS), a companion to the DCP.

8. The DCP (and IPS, if required) containing the AS is submitted to the decision authority for review and approval to enter the Development Proveout Phase. The decision authority's approval is provided by either a Secretary of Defense Decision Memorandum (SDDM) or a System Acquisition Decision Memorandum (SADM).

## NOTE

The updating and review and approval procedure for the AS at Milestone III is the same as in steps 6, 7, and 8 above.

## Process Outline



## Acquisition Strategy (AS) Format

(This annex may not exceed 15 pages.)

(Note: As a minimum, the following elements of the system's AS will be addressed. If a particular element is not applicable to a specific system, then a brief justification for the exclusion should be provided.)

1. Program Structure. Explain the management options which were considered. (These may vary from a hands-off or total contractor-managed approach, where the MATDEV places major responsibilities on the contractors to manage and execute the program; to the other extreme, where the MATDEV plans to control the program tightly. This tight control will include maximizing in-house developmental efforts.) If a total contractor-managed approach is not being recommended, explain why. Address decisions on use of major Government-furnished equipment versus contractor-furnished equipment.

7.10 2. Contracting Strategy. Discuss types of contracts contemplated for succeeding phases. Identify incentive structure. Explain the manner in which competition will be maximized in the form of a total life-cycle competition strategy (TLCCS). This should include discussion of competitive and non-competitive aspects of each phase, supported by economic and logistical analysis sufficient to form the basis for justification for other than full and open competition where applicable to stimulate achievement of Design-to-Unit Production Cost (DTUPC), performance, and schedule goals. Identify if program is covered by mandatory warranties. Discuss warranty planning.

3. Tailoring the Acquisition Process. Discuss the major efforts to be accomplished during each phase of the acquisition process. Summarize plans to incorporate key principles during system design. Discuss plans to compress the process and accelerate acquisition (to include skipping phases or using concurrency). Describe plans to reduce risks if a compressed process or acceleration is planned. List waivers obtained or required for an accelerated program. Identify specific events and criteria to be met for Milestone II and III decisions.

4. MANPRINT. Plan to ensure that MANPRINT is applied from the outset of the acquisition process. Although MANPRINT is most crucial early in the development cycle, it should be pursued throughout. Accordingly, materiel should be tailored to the specific needs and circumstances of each phase of the acquisition.



Acquisition Strategy (AS) Format  
(continued)

5. Supportability. Discuss how this system will be supported when fielded. If Interim Contractor Support (ICS) is envisioned, specify the support functions, echelons, and length of time the ICS will be required. Summarize plans to ensure that ILS considerations have been evaluated during system design. Specify means to obtain contractor participation in efforts to minimize operating and support costs and improve system availability. Prove status of the ILS Plan for this system. Discuss plans to ensure maximum use of standard TMDE versus new, system-unique TMDE. If a compressed acquisition process is being used or purchase of a commercial item is planned, summarize actions being taken or planned to reduce support risks. Discuss impacts of warranty program on support and supply concepts, if appropriate. Discuss RAM, Quality Assurance, RAM-driven Operating and Support (O&S) costs, and strategic and tactical deployability impacts. Identify the approach to be taken to ensure adequate levels of RAM and Quality Assurance and to control RAM-driven military standards. Identify applicable regulations, DOD directives and top-level military standards. Clearly identify additions and subtractions to the requirements in those documents. Identify means of tracking achieved RAM and estimated RAM-driven O&S costs.

7.11

6. Manufacturing and Production. Describe activities necessary to bring the system to a state of production readiness, assuring a smooth transition to production. Summarize Producibility Engineering and Planning (PEP) efforts planned for the program. Address the integration of the TDPs on the smooth transition into peacetime, surge, and mobilization production. Identify manufacturing technology efforts needed to reduce production risk to acceptable levels. Detail plans for production proveout of both the product and facilities. Discuss how Value Engineering (VE) methodology will be employed. Describe plans to ensure an industrial base response to support efficient baseline manufacture and provide for required surge capacity to include consideration of second sources. What is the economic production rate for this system? Discuss plans to achieve the economic production rate.

7. Test and Evaluation. Provide a digest for the TEMP. Provide an overview of test and evaluation planned for this program including, if possible, the issues and criteria supported for evaluation. Discuss plans to ensure that a system support package and a test support package will be provided. Discuss plans to ensure that adequate quantities of test hardware will be provided. How is front-end funding of test hardware being achieved? Identify testers and evaluators.

Acquisition Strategy (AS) Format  
(continued)

8. Cost Growth and Drivers. Identify readiness, O&S, and manpower cost drivers in predecessor systems. Discuss planned improvements in proposed systems. Summarize plans for containing cost growth during development and transition to production. Discuss the application of DTC procedures and how DTC goals will be incentivized, tracked, and verified. Identify tradeoffs which may be considered in succeeding phases to help control resource requirements.

9. Technical Risks. Summarize known technical risks and plans to reduce or eliminate such risks in succeeding phases. See Command Guidance Statement (CGS) No. 132, Transition from Development to Production. CGS 132 requires that during development of the program acquisition strategy, technical risks be identified and reduced. DOD Manual 4245.7 and NAVSO P-6071 Best Practices will be utilized in the preparation of all acquisition strategies. Identify the amount of Total Risk Assessing Cost Estimate-RDTE (TRACE-R) and Total Risk Assessing Cost Estimate for Procurement (TRACE-P).

7.12

10. HFE, Safety and Health. Discuss HFE safety and health hazard lessons learned and mishap experience from predecessor systems, when applicable. Summarize plans to ensure that HFE, system safety, and health hazard assessment and control are considered throughout the design process. What are the significant potential hazards that must be, or have been, eliminated or controlled during system design or accepted by formal decision?

11. Rationalization, Standardization, and Interoperability (RSI). Summarize plans to ensure that RSI goals are achieved.

12. Survivability and Endurance. What major survivability and endurance goals require validation? Describe validation methods to be used.

13. Electric Power and Environmental Control Equipment. Discuss requirements and indicate status of design validation (see AR 700-101 and AR 700-115).

14. Short-Term Issues. Discuss issues that need to be resolved before the next milestone review, including shortfalls in required funding.

## **Chapter 8**

### **ACQUISITION PLAN**

### Chapter Guide

The Acquisition Plan (AP) documents the acquisition planning process and provides a comprehensive approach for achieving goals established in materiel requirements. The AP is derived from the Acquisition Strategy (AS) and describes actions necessary to accomplish that strategy. The AP summarizes the contractual approach and functional plans and serves as a management integration device. APs are prepared for systems and major items of hardware and software to be developed and produced, including equipment to be provided by the Government, system support and initial provisioning, replenishment repair parts, and services procurement. Each system's AP is conducted as a series of sequential discrete plans coinciding with the development and production phases of the acquisition process. Each discrete plan, in addition to addressing requirements for the ongoing phase, forecasts completion of events in subsequent phases as much as possible. These plans must provide a recognizable audit trail for the system/item.

The AP and its updates support the preparation of milestone review documentation and reflect functional plans and documents flowing from a decision to enter the Proof of Principle Phase (Milestone I/II) and Milestone III. Accordingly, applicable functional plans and documents (ILSP, TEMP, etc.) should be summarized in sufficient detail in the AP to assure total program objectives are understood.

APs and updates thereto are approved prior to release of the solicitation document.

#### AP APPROVAL LEVELS.

The Office of the Assistant Secretary of the Army (RDA) approves all APs and AP updates for major or designated acquisition programs with an estimated advanced (6.3), engineering (6.4), or operational system development (6.7) cost of \$2 million or more. All other development plans with a cost of \$2 million or more are approved by the contracting directorate, DA ODCSLOG.

## Chapter Guide

The Deputy Assistant Secretary of the Army (Acquisition) (DASA(A)) approves all APs and AP updates for production acquisitions with an estimated cost of \$5 million for any one year, or \$15 million for all years, and for the acquisition of services with an estimated cost of \$5 million or more per annum. These APs are submitted to HQ AMC (AMCPP) for staffing and forwarded through the Deputy Chief of Staff for Research, Development, and Acquisition (DCSRDA) to the DASA(A) (see process outline on pages 8.4-8.7.)

APs for DOD major programs and Designated Acquisition Programs (DAPs) are submitted to HQ AMC (AMCPP) and reviewed by the HQ AMC Materiel Acquisition Review Board (MARB) prior to forwarding them through DCSRDA to DASA(A).

Submit APs to AMCPP with a cover letter signed by the major subordinate command (MSC) commander or direct-reporting project manager (PM). The AP itself indicates the approval of the MSC Procurement Directorate (procurement representative) and the PM.

The AP is updated in accordance with the schedule specified in the AP or whenever changes occur materially that affect the method of procurement/objectives of the AP.

## Responsibilities

Primary responsibility for preparing, maintaining, and coordinating the AP through contracting authority channels resides with the MATDEV or his designee. Preparation is coordinated with the contracting officer (CO) assigned to the program.

## Chapter Proponent Office

AMC: AMCPP

### References

The following documents direct or influence the procedures for the preparation, review, and approval of the AP:

OSD: Federal Acquisition Regulation (FAR) - Part 7  
DOD FAR Supplement - Part 7

DA: AR 70-1  
Army FAR Supplement - Part 7

AMC: AMC-P 715-3  
AMC FAR Supplement - Part 7  
Acquisition Letters 85-32 and 85-34

Also see chapter 7, Acquisition Strategy.

### Time Constraints

**8.3**

The AP and updates must be approved prior to release of solicitation documents covered by the plan.

### Procedure

Detailed procedures for development, review, and approval of the AP are described on the following pages in the form of descriptive paragraphs on the left-hand pages and corresponding flow charts on the facing pages.

Where appropriate, a "NOTE" has been added to the end of a paragraph to highlight options to the action called for in the paragraph or to provide some other insight into the action described.

## Process Outline

1. The AS serves as the conceptual basis for the preparation of the AP. Based on the combined acquisition planning efforts of the major participants in the program, PM/MSD prepares the AP in coordination with the CO. The suggested content of the AP is provided starting on page 8.8.

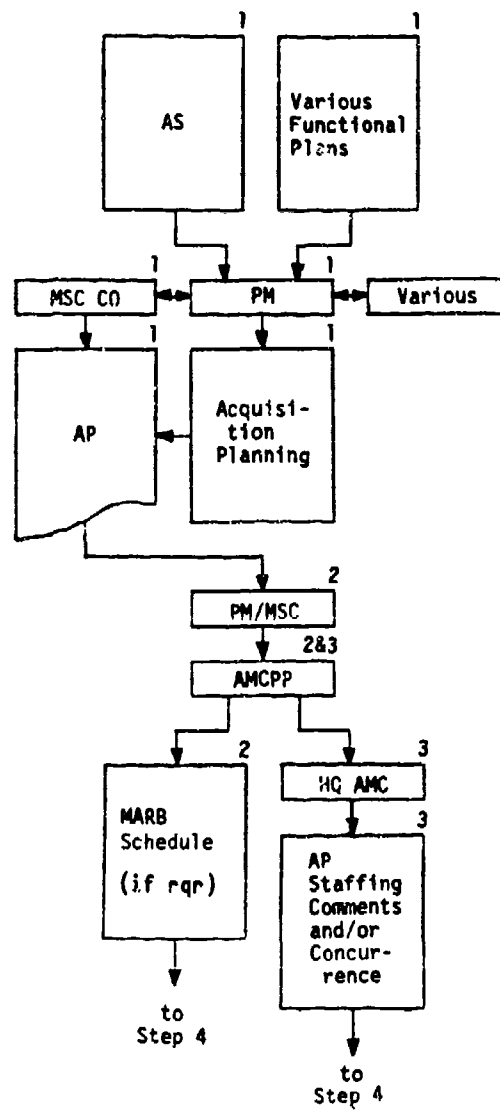
## NOTE

Preparation of the AS and AP begins at about the same time. Once the AS is formally approved at the milestone review, the AP is finalized for approval at the appropriate level.

## 8.4

2. After the AP has been reviewed by the PM/MSD, it is submitted to AMCPP for staffing. If the AP requires MARB review, AMCPP, after review of the AP, schedules the MARB. At the same time, AMCPP also provides copies of the AP to MARB members and others within HQ AMC in sufficient time to permit adequate staffing within HQ AMC prior to the scheduled review.

## Process Outline



8.5



## Process Outline

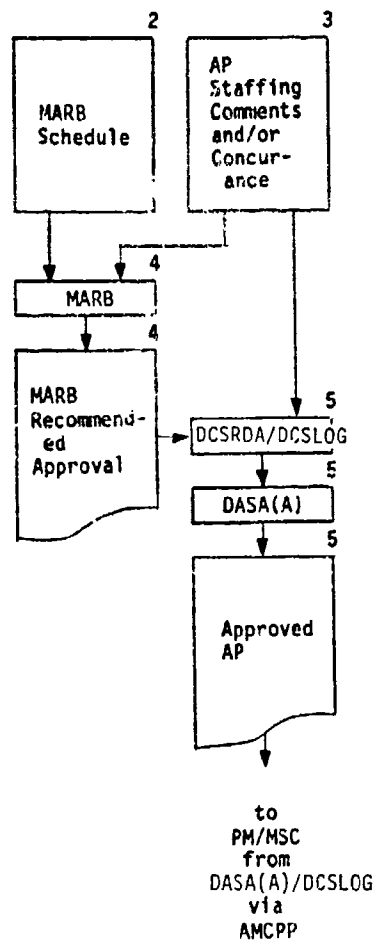
3. MARB members, HQ AMC functional elements, and Weapon System Support Officers (WSSOs), in coordination with the Weapon System Staff Managers (WSSMs), and others at HQ AMC review the AP and provide formal comments, recommended changes, and/or concurrence, as appropriate to AMCPP. During this review, participants contact the originator of the AP to resolve outstanding issues, where possible.

4. After receipt of the various comments and/or concurrences, the MARB, conducts its review of the AP. Each member of the MARB has an equal vote. If the MARB is in agreement, it recommends forwarding the AP for approval. For APs not requiring MARB review, the AP is staffed throughout HQ AMC and forwarded recommending approval. If APs are considered inadequate or outstanding issues remain unresolved, AMCPP takes appropriate action.

5. After the AP is staffed by AMCPP and is recommended for approval by the MARB and/or AMCPP, it is forwarded by AMCPP to the final approval authority, either the DASA(A) or ODCSLOG via the DCSRDA for review and approval. After review/approval, it is returned to HQ AMC (AMCPP) for disposition.

8.6

## Process Outline



8.7

## Content of the Acquisition Plan

The plan shall address all the technical, business, management, and other significant considerations that will control the acquisition. The specific content and format of the AP varies depending on the nature, circumstances, and stage of acquisition. (See referenced documents for additional guidance.)

## ACQUISITION BACKGROUND AND OBJECTIVES:

Statement of Need: Introduce the plan by a brief statement of need. Summarize the technical and contractual history of the acquisition. Discuss feasible acquisition alternatives and any related in-house effort. Include a description of the program, item, or system providing a brief nontechnical description and statement of general application.

Applicable Conditions: State all significant conditions affecting the acquisition, such as requirements for compatibility with existing or future systems or programs; any known cost, schedule, compatibility or performance constraints.

Cost: Provide the established cost goals and the rationale for supporting them and discuss related cost concepts to be employed, i.e., life-cycle cost, design to cost, should-cost, contractor cost reporting requirements, including requirements such as Cost/Schedule Control Systems Criteria (C/SCSC).

Capability or Performance: Specify the required capability or performance characteristics of the supplies or services being acquired and state how they are related to need.

Delivery: Describe the basis for establishing delivery period requirements. Explain and provides reasons for any urgency if it results in concurrency of development and production.

Tradeoffs: Discuss expected consequence of tradeoffs among the various cost, capability, or performance and schedule goals.

Risks: Discuss technical, cost and schedule risks and describe what efforts are planned or underway to reduce risk and the consequences of failure to achieve goals. Discuss effects on program cost of business base changes of major contractors' workload.

Content Of The Acquisition Plan (AP)  
(Continued)

Applicability of a DCP, JRMB, and/or Internal Services Reviews: Describe the options set forth in the DCP/Program Memorandum and delineate which option the acquisition plan supports.

Approval for Operational Use: Indicate the date approval for operational use has been or will be obtained. If waivers are requested, describe the need for waivers.

PLAN OF ACTION:

Sources: Indicate the prospective sources of supplies and/or services that can meet the need. Include consideration of small businesses, small disadvantaged businesses, and labor surplus area concerns. Address results of market research and analysis and indicate their impact on various elements of the plan.

Competition: Identify how the proposed plan supports the Total Life Cycle Competition Strategy set forth in the AS. Describe how competition will be sought, promoted, and sustained throughout the course of the acquisition. Discuss why full and open competition (F&OC) cannot be obtained if that is the case, and state which circumstance to other than F&OC will be utilized (FAR, Part 6). Describe how competition will be sought, promoted, and sustained through component breakout and spares and repair parts.

Source-selection Process: Discuss the source-selection procedures for the acquisition, including the timing for submission and evaluation of proposals and the relationship of evaluation factors.

Contracting Considerations: For each contract contemplated, discuss contract type selections, use of multiyear contracting, options, or other special contracting methods.

CONTENT OF THE ACQUISITION PLAN (AP)  
(Continued)

Budgeting and Funding: Describe how budget estimates were derived and discuss the schedule for obtaining adequate funds at the time they are required. Include specific references to budget line items and program elements, where applicable, estimated production unit cost, and the total cost for remaining production. Include a summary of monies in the FYDP/budget submission. Identify the total cost, contract cost, in-house cost, and quantities for both R&D and production by fiscal year. Discuss any Program Objective Memorandum (POM) considerations.

Product Descriptions: Explain the choice of product description types to be used in the acquisition.

Priorities, Allocations, and Allotments: When urgency of the requirement dictates a particularly short delivery or performance schedule, certain priorities may apply. Specify the method for obtaining and using priorities, allocations and allotment, and the reasons for them.

Contractor versus Government Performance: Address considerations taken into account in deciding to acquire supplies or services using contractor and/or Government resources. (See OMB Cir A-76.)

Management Information Requirements: Discuss what management system will be used by the Government to monitor the contractors' effort.

Make or Buy: Discuss any consideration given to make-or-buy programs.

Test and Evaluation: Describe the test program of the contractor and the Government. Describe the test program for each major phase of a major system acquisition.

Logistics Considerations: Describe the extent of integrated logistics support planning to date, including references to approved plans. Discuss standardization concepts, including the necessity to designate, in accordance with agency procedures, technical equipment as standard, so that future purchases can be made from the same manufacturing source.

Content of the Acquisition Plan (AP)  
(Continued)

Reliability, Maintainability, and Quality Assurance Objectives, including Warranties: Discuss the major reliability and maintainability (R&M) and quality assurance (QA) requirements, including any planned use of warranties or contract incentives.

- a. Specifications and Requirements. This section should include R&M guidance to which the program is to be developed, e.g., is the program structured around MIL-STD-785B? Include the quantitative requirements showing how these requirements are to be invoked in contract specifications.
- b. Design Disciplines. Address the disciplines to be used in the program and which are to be contractually invoked, e.g., mission profile established by Army and included in development specifications, parts program, corrosion prevention and control program plan to be established.
- c. Test Program. Discuss the R&M-specific tests to be conducted and how they are integrated into the overall system test plan.
- d. Controls and Reporting. Discuss the techniques to be used, e.g., R&M in-design review, subcontractor/vendor control, and failure analysis.
- e. Quality Assurance. Describe briefly the QA program, e.g., compliance to MIL-Q-9858.

Government-Furnished Property: Indicate any property to be furnished to contractors, including materiel and facilities.

Government-Furnished Information: Discuss any Government information such as manuals, drawings, and test data to be provided to prospective offerors and contractors.

Environmental Consideration: Discuss environmental issues associated with the acquisition, the applicability of an environmental assessment or impact statement, the proposed resolution of environmental issues, and any environment-related requirements to be included in solicitations and contracts.

Content of the Acquisition Plan (AP)  
(Continued)

Security Considerations: For acquisitions dealing with classified matters, discuss how adequate security will be established, maintained, and monitored.

Safety Consideration: Discuss the degree of Government and contractor responsibilities and participation in the system safety program. Discuss the plan for continuity in the system safety program if the system is not procured on a sole source basis.

Other Considerations: Discuss as applicable, energy conservation measures, standardization concepts, the industrial readiness programs, Defense Production Act, the Occupational Safety and Health Act, foreign sales implications, transition from development to production and other production issues, and any other matters germane to the plan not covered elsewhere. (See referenced documents for other areas which may need to be considered.)

8.12

Milestones for the Acquisition Cycle: Address the following steps:

- Acquisition plan approval and planned updates
- Statement of Work
- Specifications
- Data requirements
- Completion of acquisition package preparation
- Purchase request
- Justification and approval for other than full and open competition where applicable and/or any required D&F approval
- Issuance of synopsis
- Issuance of solicitation
- Evaluation of proposals, audits, and field reports
- Beginning and completion of negotiations
- Contract preparation, review, and clearance
- Contract award.

Milestone Chart: Provide as an attachment a milestone chart depicting the objectives of the acquisition.

Content Of The Acquisition Plan (AP)  
(Continued)

Identification of Participants: Identify all participants  
in the development of the AP.

NOTE

For AMC programs under the Program Management  
Control System (PMCS), the Program Directive  
(PD) and updates may be attached to and the  
applicable information referenced in the AP.



8.14

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## **Chapter 9**

# **PROGRAM MANAGEMENT DOCUMENTATION (PMD)**

## PART I

## Chapter Guide

This chapter will describe required elements of Program Management Documentation (PMD). The information is presented depicting the Army Streamlined Acquisition Process (ASAP) concept. The minor variations in documentation required for the traditional life cycle process are shown where pertinent.

PMD is the terminology used to describe the collection of documents which outline procedures to be taken to satisfy requirements throughout the acquisition life cycle process. Part II of this chapter contains a brief definition of each document in numerical order, corresponding to Part III, and provides reference to corresponding chapter within this handbook for further information and controlling regulation references. Where a separate chapter has not been established, reference to controlling regulations will follow the definition. Part III provides a matrix summary of principal PMD (Materiel Documents, Decision Documents, and Program Documents), accompanied by those supporting documents within. Included are the proponent authorities, initial document preparation responsibilities, approval authorities, phase/milestone/other the specific document is required for, and requirements for update. Part IV provides a reference table of formal review forums which have been established to review, evaluate, and approve requirements (in general) and overall PMD throughout the acquisition process. Also included are sources of requirements (i. e., who generates and when), governing regulation and proponent offices, documentation/controlling mechanisms, and other requirements/actions being influenced.

9.1

All documentation included in a system/item acquisition life cycle process is divided into three major categories:

MATERIEL DOCUMENTS state an Army need and are normally generated by US Army Training and Doctrine Command (TRADOC), in coordination with the US Army Materiel Command (AMC), and reviewed and approved by the appropriate decision authority.

DECISION DOCUMENTS present, at various milestones, the progress of the program and objectives for the next phase of acquisition. Normally generated by AMC, in coordination with TRADOC, reviewed by the designated review body, and approved by the appropriate decision authority.

PROGRAM DOCUMENTS describe individual plans to be used to implement the system's acquisition strategy. Generated by the cognizant organization and reviewed and approved in accordance with controlling regulations.

The majority of individual supporting documents within PMD are refined and updated throughout the acquisition life cycle process of a system/item. PMD should be tailored to the specific system/item and documents combined/shortened where possible providing rationale as required by controlling

## PART I

## Chapter Guide

regulations. Portions of PMD may be omitted, if appropriate, depending on the complexity and development stage of a particular system. Additional information may be included in the documentation if it enhances the management of the program or is requested by the decision authority. Omission of any required documentation must have written justification and approval from the proponent agency.

## Responsibilities

AMC and TRADOC have proponent responsibility for maintenance and administration of PMD as specified in the matrix at Part III.

## Proponent Offices

AMC: AMCDE-P

TRADOC: ATCD-E

## References

The following regulatory guidance provides further information on data contained within specific PMD.

DOD: DODD 5000.1  
DODD 5000.43  
DODI 5000.2

DA: AR 15-14  
AR 70-1  
AR 71-9

NOTE: Also see chapters referenced within this handbook for individual document descriptions and further regulatory guidance.

## Time Constraints

PMD, as such, has no specific time constraints. However, individual documents included, as shown on following pages, have their own stated time constraints as prescribed by controlling regulations.

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## PART II - DEFINITIONS

## Section 1 - Materiel Documents

1. Operational and Organizational Plan (O&O Plan). The O&O Plan is the Program Initiation document for all programs. For programs expected to exceed established dollar criteria, a JMSNS will also be prepared and submitted to OSD through the Program Objective Memorandum (POM) process. The O&O Plan outlines in as much detail as possible how a materiel system/item will be used and supported, how it will ultimately contribute to combat capability and required materiel interface, in what organization(s) it will be placed, and, if applicable, the system(s)/item(s) to be replaced. (See chapter 3.)
2. Justification for Major System New Start (JMSNS). The JMSNS is required when the dollar threshold is projected to exceed \$200 million in Research, Development, Test, and Evaluation (RDTE) or \$1 billion in Procurement (FY80 dollars). The JMSNS will define the battlefield deficiency as narrowly as possible so that it may be corrected by acquiring a single system/item or family of systems. The JMSNS supports the Mission Need Determination decision for Program Initiation and documents the identified Army need for DOD Major Programs. (See chapter 3.)
3. Required Operational Capability (ROC). The ROC states concisely the minimum essential operational, technical, logistical, and cost information necessary to initiate the Development Proveout Phase of a system. Includes training device annex(es) for system specific devices. A ROC is a formal requirement which, when approved and funded, commits a program to a development or production decision. It will not normally be approved until Proof of Principle has been conducted under an approved O&O Plan. (See chapter 4.)
4. Families of Materiel Requirements. A capstone O&O Plan and ROC will be prepared for Families of Materiel. The family concept recognizes the relationship among groups of components for systems serving a common purpose. An annex to the ROC containing specific ROC format paragraph information, and appropriate appendices/annexes, will be prepared to support each "member" of the family. (See chapter 4.)
5. Joint Service Operational Requirement (JSOR). When Army leads in development, production, and acquisition of a system under a JSOR, the information will follow the format of the ROC. Upon HQDA approval the JSOR will be coordinated formally with other interested Services and Government agencies. The information provided under another service lead will be in that service's format. (See chapter 4.)
6. Other Service Requirements Document. When an Other Service Requirements Document adequately describes an Army requirement, such documents may be approved as the Army requirement by the appropriate Army approval authority through issuance of a formalized letter. An approved Army O&O Plan and cost assessment must accompany the letter. (See O&O Plan format, AR 71-9, appendix B.)

## PART II - DEFINITIONS

## Section 1 - Materiel Documents

7. Reliability, Availability, Maintainability (RAM) Rationale Report (RRR). The RRR is a report prepared by the combat and materiel developers corresponding to a requirements document which justifies the quantitative RAM values as well as any higher order effectiveness parameters. The RRR is a separate entity from the requirements document, however, each RRR will contain an Executive Summary which will be extracted to serve as the RAM Rationale Report Annex and will accompany the requirements document. (See chapter 7.)

- RAM Rationale Annex (RRA)/Executive Summary. The RRA/Executive Summary is a two page annex to a requirements document which is prepared by the combat and materiel developers and justifies the quantitative RAM values as well as any higher order effectiveness parameters in a summarized format. (See chapter 7.)

8. Training Device Requirement (TDR). The TDR supports those devices developed and/or procured to support general military training, training on, or with, more than one system, or training associated with several different types of equipment related to the program. The TDR will state concisely the minimum essential operational, technical, logistic, manpower, safety, health, human factors engineering (HFE), and cost information needed to develop, procure, fabricate, or manage an item to improve learning. (See chapter 5.)

- Training Device Need Statement (TDNS). The TDNS leads to the TDR. The TDNS provides the training community and AMC with the minimum essential information concerning the role of the proposed training device in an individual or collective training program, and where and how the device will be used. (See chapter 5.)

9. Commercial Training Device Requirement (CTDR). The CTDR describes those training devices which are available for procurement (purchase) by the Army to satisfy a specific training device requirement. Unlike NDI, commercially available devices are excluded from type classification and do not require modification or militarization in order to adopt them for the Army's intended use. Commercially available devices are procured under the authority of an approved CTDR document. (See chapter 5.)

10. Operational Need Statement (ONS). The ONS states a user's need for a materiel solution to correct a deficiency or to improve a capability which impacts upon mission accomplishment. The ONS provides an opportunity outside the combat/materiel developer community to initiate the combat development process. (See ONS format, AR 71-9, appendix 1, and HQDA(DAMO-FDZ) message, 141708Z JAN 87, Subject: Interim Guidance - AR 71-9 Materiel Objectives and Requirements.)



## PART II - DEFINITIONS

## Section 2 - Decision Documents

1. System Concept Paper (SCP). The SCP is used only for those systems directed to follow the Traditional DOD Life Cycle model. The SCP supports the Milestone I decision and provides the authority to proceed with the Demonstration and Validation Phase. It provides the system requirement, based upon preliminary evaluation of concepts, initial operational capability (IOC), threat, costs, schedule, readiness objectives, and affordability. (Under the streamlined process, a review of the Acquisition Strategy is substituted for the formal SCP and Milestone I review for programs not requiring a discrete Demonstration and Validation Phase.) (See DODD 5000.1, Paragraph E4b and AR 70-1, appendix C.)

2. Decision Coordinating Paper (DCP). The DCP is in essence an executive summary of past events, current status, and future plans and strategies concerning the acquisition of new or improved materiel. Supported in detail by PMD, DCP serves as a coordinating paper in preparation for Materiel Acquisition Decision Process (MADP) reviews; the core read-ahead document prior to formal review; the major decision document at Milestones I/II and III (Milestones II and III for traditional); and as the document of record attached to the minutes following formal review. The information called for in the format is structured to produce a concise, but complete picture. The alpha-numeric identification of each titled paragraph will be retained and accounted for. If the information called for is not applicable or otherwise unanswerable, an explanation is required. Some paragraphs call for limited information such as number of systems to be acquired, identification of major subsystems, systems to be replaced, etc. However, most paragraphs require narrative executive summaries. These are to be written concisely, but completely and objectively. Ensure completeness by checking narratives in terms of WHO, WHAT, WHEN, WHERE, WHY, and HOW. Ensure objectivity by avoiding the use of adjectives and adverbs to characterize unstated facts. (See AR 15-14 and AR 70-1, appendix D.)

3. Integrated Program Summary (IPS). The IPS provides a detailed summary of the program at Milestones I/II and III (Milestones 1, II, and III for traditional). It is only required when appropriate decision authority requests further information beyond that presented in the DCP (SCP, where applicable). The IPS will be attached as annex F to the DCP when required. (See AR 15-14 and AR 70-1, appendix F.)



## PART II - DEFINITIONS

## Section 3 - Program Documents

1. Acquisition Strategy (AS). An AS is required for all Army acquisition programs. The AS is a conceptual framework for conducting materiel acquisition, encompassing broad concepts and objectives that direct and control overall development, production, and deployment of a materiel system/item. It evolves parallel with the system maturation. The AS must be stable enough to provide continuity but dynamic enough to accommodate change. The AS will be documented and approved as annex F to the DCP (SCP, where applicable). (See chapter 7.)

- Total Life Cycle Competition Strategy (TLCCS). The TLCCS is an integral part of the Acquisition Strategy. It describes the technical and contracting methods for maximizing effective Full and Open Competition (FOC) at the manufacturing source level throughout the system's/item's life cycle. The TLCCS will address the entire system to include end item(s), components and spare parts in light of breakout, spares acquisition integrated with production (SAIP), and acquisition of technical data and data rights. It also serves as the basis for justifying proposed procurements for other than FOC. (See chapter 7.)

2. Acquisition Plan (AP). The AP serves as a management integration device and as an acquisition coordination document. It addresses acquisition background and objectives including brief statement of need, summary of technical and contractual history, and discussion of alternatives; constraints; cost goals (such as life cycle cost, design to cost, should-cost applicability); performance capability and requirements; risks and tradeoffs with emphasis on the contractual impacts. Addresses plan of action relative to sources considered, competition, source selection procedures, and contractual considerations. Also summarizes other functional planning. Provides detailed milestones for the contracting processes. (See chapter 8.)

3. Concept Formulation Package (CFP). Upon O&O Plan approval or O&O Plan and JMSNS approval, the CFP is prepared to document the materiel concept formulation effort. (See Format for Organizing a CFP, AR 71-9, appendix H.) The CFP consists of the following documents prepared in sequential order:

a. Trade-Off Determination (TOD). The TOD contains a description of the technical approach, evidence that the approach is engineering rather than experimental, tradeoffs for this approach, estimated life cycle costs, and the recommended technical approach.

b. Trade-Off Analysis (TOA). The TOA contains the mission and performance rationale, analysis of system tradeoffs, and the selection of the best technical approach from an operational and logistical perspective.

## PART II - DEFINITIONS

## Section 3 - Program Documents

c. Best Technical Approach (BTA). The BTA contains a description of the best technical approach and integrated logistic support concepts, evidence that the selected approach is engineering, not experimental, estimated costs (Research and Development, Army (RDA), Operation and Maintenance, Army (OMA), and Military Construction, Army (MCA)), a recommendation on whether development should be project managed, and a draft environmental impact statement.

d. Cost and Operational Effectiveness Analysis (COEA)/Abbreviated Analysis (AA). A COEA is prepared for each DOD Major Program and Designated Acquisition Program (DAP). An AA is prepared for all other programs. The COEA is a comparison of the effectiveness of alternative means of meeting a need or requirement and the cost of developing, fielding, and operating each alternative. The alternatives are evaluated as part of a larger force and will address: missions and related tasks to be performed; threat and conditions under which the tasks must be performed; programmed capabilities to perform tasks and resultant deficiencies; System Employment and Organizational Plan (SEOP) for each alternative; effectiveness of each alternative and extent to which it satisfied deficiencies; logistic; manpower and personnel; training; and resource costs of each alternative. The analytical effort required for the COEA will be less rigorous for all other programs than that required for DOD Major and DAP programs and will result in the AA. The AA will be of much simpler content than the COEA, for example, consisting of cost-performance relationships for the most important system parameters, and performed inhouse by the proponent agency using limited manpower and resources. Normally, an AA will not be formally directed or managed. It will be reported as an enclosure to the materiel acquisition document it is supporting.

4. Cost and Training Effectiveness Analysis (CTEA). The CTEA is a comparison of alternative training programs for developing or fielded systems in the same manner as the COEA for hardware systems and programs. A CTEA is conducted as part of a system specific COEA or as a stand alone analysis. (See AR 71-9.)

5. Baseline Cost Estimate (BCE). The BCE is a generic term denoting a complete, detailed, and fully documented estimate of materiel system/item life cycle costs accomplished by the system proponent (weapon system project manager). It is a dynamic document, appropriately refined and updated throughout the acquisition life cycle. It serves, after review and validation, as the principal cost estimate for that system. If appropriate, the Comptroller of the Army will propose to Army Systems Acquisition Review Council (ASARC) principals a preferred Army program estimate through the mechanisms of the Army Cost Analysis Paper (ACAP) or Cost Analysis Brief (CAB). In this event, the BCE may require modification to reflect the will of ASARC principals prior to being recorded in management decision recording documents such as the DCP (SCP, where applicable). A BCE completed for entry into the Proof of Principle Phase is known as the Planning Estimate.

## PART II - DEFINITIONS

## Section 3 - Program Documents

The BCE completed for Milestone I/II (program Go-No Go decision) is known as the Development Estimate. (See AR 15-14, AR 11-18, DA Pamphlets 11-25, 11-2, 11-3, 11-4, 11-5, and Defense Contracting Agency Pamphlet-92(R) (DCA P-92(R)).)

6. Test and Evaluation Master Plan (TEMP). The TEMP is the major test and evaluation (T&E) planning document and identifies all critical technical characteristics, operational issues, and is the basic planning document for all system/item related T&E used by OSD and all DOD components for planning, reviewing, and approving T&E. The TEMP will identify and integrate objectives, responsibilities, resources, and schedules for all T&E which has been/will be accomplished. (See chapter 13.)

- Master Evaluation Plan (MEP). The MEP consolidates the technical and operational Independent Evaluation Plans with the materiel developer's Detailed Test Plans for evaluation of the system. It identifies each issue for evaluation and the methodology to be used, specifying the procedures for exchange of evaluation information. The MEP is referenced or annexed to the TEMP, as appropriate. (See chapter 13.)

- Independent Evaluation Plan (IEP). The technical independent evaluator (IE) and operational IE each prepare an IEP addressing all aspects of evaluation responsibilities relative to the system. The IEP details the independent evaluator's actions for the evaluation of the system. The objective of the IEP is to address the technical characteristics and operational issues; describe the evaluation of characteristics and issues which require data from sources other than test; state the technical characteristics or operational issues and criteria; identify data sources; state the approach to the independent evaluation; specify the analytical plan; and identify program constraints. (See chapter 13.)

- Test Design Plan. The Test Design Plan is derived from the MEP. The Test Design Plan will include a complete test design, a description of required tests, the conditions under which the system/item will be tested, a statement of test criteria and methodology and plans for data collection and analysis, and provides specific data requirements. It serves as guidance for the Detailed Test Plan. The Test Design Plan is referenced or annexed to the TEMP, as appropriate. (See chapter 13.)

- Integrated Test Schedule (ITS). The ITS documents planned testing down to the lowest practical level in accordance with program status within the life cycle. It will identify the end item, assembly or equipment to be tested, type of test, objective, and location of test. The ITS is referenced or annexed to the TEMP, as appropriate. (See chapter 13.)

7. Detailed Test Plan (DTP). The DTP is internal to the testing organization. It provides detailed instructions for conduct of test and subtests. It governs test control, data collection, data analysis, and administrative aspects of the tester's operations. (See chapter 13.)

## PART II - DEFINITIONS

## Section 3 - Program Documents

8. Outline Test Plan (OTP). The OTP contains a listing of necessary resources required and administrative information necessary to support user tests. It is prepared for the Test, Schedule, and Review Committee (TSARC). The OTP will include critical test issues, test conditions, scope, resource requirements, suspense dates, and test milestone dates. It will also address tactical context and contain a cost estimate involved. (See chapter 13.)

9. Test Incident Report (TIR). The TIR provides an Army standard method of reporting critical, major, and minor test incidents disclosed during materiel testing and for the reporting of corrective actions taken or planned. (See chapter 13.)

10. Operational Test Readiness Statement (OTRS). The OTRS addresses or certifies the readiness of the system for test in each member's area of responsibility. The materiel developer's OTRS will include a safety release for OTEA conducted testing. (See chapter 13.)

11. Test Report (TR). The TR is a formal document of record which reports the data and information obtained from the conduct of test and describes the conditions which actually prevailed during test execution and data collection. (See chapter 13.)

12. Independent Evaluation Report (IER). The IER is an independent evaluation of the system based on test data, reports, studies, and other appropriate sources. The IER is prepared, approved, and published by the technical and operational independent evaluators at key milestone events. The IER is a formal document of record containing an assessment of the characteristics and issues, the independent evaluator's conclusions, the evaluator's position on the future capability of the system to fulfill the approved requirements, an assessment of the adequacy of testing and the need for additional testing, and identifies program constraints and their impact on the evaluation. (See chapter 13.)

13. System Safety Program Plan (SSPP). The SSPP will provide uniform requirements for developing and implementing a system safety program sufficiently comprehensive to identify the hazards of a system to ensure that adequate measures are taken to eliminate or control the hazards. A system safety program prescribes those actions and policies required to assure the optimum degree of safety and health features, within the bounds of operational effectiveness, time, and cost, attained by using system safety engineering and management principles to identify hazards and reduce risks throughout a system/item life cycle. (See AR 385-16, MIL STD-882A, and AR 70-1.)

14. Safety Assessment Report (SAR). The SAR is a formal summary of the safety data collected by the contractor or materiel developer during the design and development of the system. Included is a contractor or materiel developer statement of the hazard potential of the item and recommended

## PART II - DEFINITIONS

## Section 3 - Program Documents

procedures or corrective actions to reduce these hazards and to avoid personnel loss/injury or equipment damage during development testing. The SAR must be provided to the tester 60 days prior to technical testing, operational testing, and concept testing. System Safety Risk Assessment must be prepared or updated 60 days prior to the appropriate MADP Review. (See chapter 11.)

- Health Hazard Assessment (HHA). The HHA is a formal process that defines the risks to the health of personnel when using or testing the system in a normal or abnormal environment. Each assessment will address potential decreases in human effectiveness. Safety and Health Data Sheets must be prepared prior to all In-Process Reviews (IPRs). The HHA becomes an integral part of the SAR. (See chapter 11.)

15. Safety Release (SR). The SR is a formal document issued to a user test agency or board prior to any testing involving troops. Each SR describes the specific hazards of the system or item based on test results, inspections, or system safety analyses. Technical and operational limits and precautions are included. The data are used by the test agency to integrate safety into test controls and procedures and to determine if the test objectives can be met within these limits. (See chapter 11.)

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16. Integrated Logistic Support Plan (ILSP). The ILSP describes the overall integrated logistic support (ILS) requirements, tasks, and milestones for the immediate acquisition phase, and projects ILS planning for succeeding phases. The ILSP serves as the source document for ILS input to other program documentation. (See chapter 8.)

17. Basis of Issue Plan (BOIP). The BOIP delineates quantities of the new system/item and personnel to be included in a specific requirement, based on unit structure and operational and organizational (O&O) documents. (See chapter 14.)

18. Qualitative and Quantitative Personnel Requirements Information (QQPRI). The QQPRI is a compilation of specified organizational, doctrinal, training, and personnel information for a new or modified materiel item/system. It identifies quantities of the new item/system, personnel changes and ASIOE required to operate, maintain, and transport the new item/system in specific organization requirements documents. (See chapter 14.)

19. Electromagnetic Spectrum Allocation Request (ESAR). The ESAR is a request for use of portions of the electromagnetic spectrum for acquisition of systems requiring such approval. (See AR 105-16.)

20. Transportability Report/Transportability Engineering Analysis (TR/TEA). The TR/TEA documents all transportability "problem item" prototypes and support equipment. A TR requesting a TEA will be submitted to the Military Traffic Management Command - Transportation Engineering Agency (MTMC-TEA) a minimum of 90 days prior to Milestone I/II and Milestone III. MTMC-TEA,

## PART II - DEFINITIONS

## Section 3 - Program Documents

upon receipt of the TR, prepares a TEA which documents the core information on which transportability review and approval are based. Transportability approval from MTMC is required prior to proceeding into the Development Proveout and Production-Deployment Phases. (See AR 70-44 and AR 70-47.)

21. Materiel Fielding Plan (MFP). The MFP is the principal document around which coordination and agreement on deployment of a new system is accomplished. The primary purpose of the MFP is to ensure that the gaining command will have sufficient advance information to budget for necessary resources and plan for receipt of new or displaced equipment. (See chapter 8.)

22. Production Readiness Plan (PRP). The PRP addresses availability of controlled, strategic, and critical materials; Government investment in production facilities; ways to increase competition in production; industrial preparedness planning with prime and key subcontractors to meet surge and mobilization requirements; producibility engineering and planning (PEP); value engineering (VE); production risks and action necessary to reduce such risks; production readiness review milestones; engineering support to overcome problems and reduce costs; minimum sustaining rate; and requirement for a contractor-prepared production plan. (See AR 70-72, DODD 4245.7-M, NAVSO P-6071, and MIL STD-1528.)

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23. Product Assurance Plan (PAP). The PAP implements a product assurance program including reliability, availability, and maintainability (RAM), quality hardware and software, and system assessment to ensure user satisfaction, mission and operational effectiveness, and conformance to specified requirements. (See DODD 4155.1, AR 702-11, and AR 702-3.)

24. Environmental Assessment/Environmental Impact Statement (EA/EIS). The EA/EIS contains statements as to the environmental effects of a proposed system. If the EA shows that the system will impact greatly or be controversial to the system, an EIS will be prepared. (See AR 200-1, AR 200-2, and AR 70-10.)

25. International Armaments Cooperative Opportunities Plan (IACOP). The IACOP ensures that opportunities to conduct cooperative research and development projects with North American Treaty Organization (NATO) partner nations and other allies are considered during the early decision points in the Department of Defense (DOD) formal development review process in connection with any planned project. It also ensures that foreign technology and NATO standardization and interoperability considerations are integral elements in the planning and execution of all programs/projects, provided United States (U. S.) security is not compromised. The IACOP consists of an International Cooperative Opportunities Document (ICOD) and an International Military Rationalization, Standardization, and Interoperability (RSI) Plan. (See annex K of this handbook, AR 34-1, AR 34-2, DA PAM Handbook XXX, and AR 70-1.)



## PART II - DEFINITIONS

## Section 3 - Program Documents

- International Military Rationalization, Standardization, and Interoperability (RSI) Plan. The International Military RSI Plan outlines RSI considerations in the areas of materiel development, testing, and acquisition. It ensures that equipment, procedures, and documentation to be used by forces overseas are standardized or at least interoperable with equipment, procedures, and documentation of our allies. (See annex K of this handbook, AR 34-1, AR 34-2, DA PAM Handbook XXX, and AR 70-1.)

26. Computer Resource Management Plan (CRMP). The CRMP describes the development, acquisition, test, and support plans for computer hardware/software/support resources for a battlefield automated system. (See draft AR 70-XX.)

27. System Manpower and Personnel Integration (MANPRINT) Management Plan (SMMP). The SMMP summarizes program/plan to address MANPRINT concerns throughout the materiel acquisition process. Provides historical documentation and formal assessment of the effectiveness of planning and execution of all MANPRINT elements. (See chapter 11.)

- Human Factors Engineering/Human Factors Engineering Analysis (HFE/HFEA). The HFE/HFEA is a formal assessment of the effectiveness of planning and execution of human engineering elements. It will become an appendix to the SMMP. (See chapter 11.)

28. Configuration Management Plan (CMP). A formal CMP is mandatory for all development and production programs. This document lays out the plans and procedures for conducting all aspects of configuration management on your program, including identification of the types of specifications and drawings to be procured; key milestones; audits to be performed; and configuration manager and Configuration Control Board (CCB) members. (See AR 70-37, AMC Supplement 1 to AR 70-37, and MIL STD-1456.)

29. Technical Data Package Management Plan (TDPMP). The TDPMP is a defined materiel developer's plan for TDP acquisition. It details data use requirements and delineates types of specifications and levels of drawings to be acquired, and lays out data schedule and resource requirements. (See AMC-R 70-46.)

30. New Equipment Training Plan (NETP). The NETP addresses, as applicable, training for staff planners, developmental and operational test personnel, trainers, supporters, and users. It will also address schedule, funding, concept, and resources. (See AR 350-35.)

31. Individual and Collective Training Plan (ICTP). The ICTP formalizes the proposed training strategy. It incorporates all known training requirements (introduction, operator, maintainer, resident, unit, and extension). It contains the training concepts and resource estimates to support the training programs. (See AR 350-35 and TRADOC-R 351-9.)

## PART II - DEFINITIONS

## Section 3 - Program Documents

32. Foreign Disclosure and Technology Security Plan (FDTSP). The FDTSP is a system description providing the level and category of classified military information necessary to disclose to a foreign government to allow participation in co-development, co-production, or purchase of an end item. It will also provide the level and category of classified information that could be devised by hostile technical exploitation of the system. (See National Disclosure Policy - 1 (NDP-1), AR 380-10, and draft AR 380-XX.)

33. Technology Security Technical Assessment (TSTA). The TSTA identifies military critical technology used to develop and produce the system and specifies U. S. technological leadtime over foreign countries. It also compares U. S. system performance parameters with like foreign systems, developmental and fielded. It will identify advantages of a U. S. system over like foreign systems and summarize the consequences of compromise of technology to a potential hostile country. (See AR 380-10 and draft AR 380-XX.)

34. System Threat Assessment Report (STAR). The STAR is a threat assessment tailored to and focused on a particular U. S. system. It contains an integrated assessment of projected enemy capabilities to limit, neutralize, or destroy a specific U. S. system. (See annex D to this handbook, DODD 5000.1, DODI 5000.2, AR 381-11, and Defense Intelligence Agency Regulation 55-3 (DIA-R 55-3).)

- Critical Intelligence Parameters (CIPs). The CIPs identify those elements of the threat, such as numbers, armor thickness, radio frequency, etc., that would critically impact the U. S. system. These will be identified by the program manager to the intelligence officer. The CIPs serve to guide future intelligence collection and production in support of the program. The CIPs become an appendix to the STAR. (See annex D of this handbook and AR 381-11.)

35. Threat Support Plan (TSP). The TSP is a milestone oriented action plan describing steps to be taken to ensure adequate and timely threat support. It's primary functions is to force threat supporters and threat consumers to lay out the schedule, requirements, and action agencies in a coherent forecast and reduce Ad Hoc last minute threat delivery. (See annex D of this handbook and AR 381-11.)

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# PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 1 - Materiel Documents

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSER AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
1. Operational and Organizational Plan (O&O Plan)	TRADOC ATCD-E	CBTDEV in coordination with: HQDA MATDEV TNGDEV RSI Manager Transportability Agent Logistician MANPRINT Planner Tester Evaluator Interested MACOM	CDR, USA TRADOC	Prepared during Requirements/Technology Base Activities.  Required for Program Initiation.  Must be approved prior to entry into the Proof of Principle Phase.	Annex to the ROC.
2. Justification for Major System New Start (JMSNS) (Required for DOD Major Programs only, accompanies approved O&O Plan.)	TRADOC ATCD-E	CBTDEV in coordination with: HQDA MATDEV TNGDEV RSI Manager Transportability Agent Logistician MANPRINT Planner Tester Evaluator Interested MACOM	SECDEF	Prepared during Requirements/Technology Base Activities.  Required for Program Initiation accompanied by approved O&O Plan.  Must be approved prior to entry into the Proof of Principle Phase.	Annex to the ROC.

## PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 1 - Materiel Documents

9

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSER AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
3. Requirements Operational Capability (ROC)	TRADOC ATCD-E	CBTDEV in coordination with: HQDA MATDEV TNGDEV RSI Manager Transportability Agent Logistician MANPRINT Planner Tester Evaluator Interested MACOM	ODCSOPS for DOD Major and DAP Programs.  CBTDEV-MATDEV jointly for all other Programs.	Prepared during Proof of Principle Phase.  Must be approved prior to entry into Development Proveout Phase.	As Appropriate
4. Families of Materiel Requirements (Consists of Capstone O&O Plan and ROC for Families of Materiel and system specific annexes as appropriate.)	TRADOC ATCD-E	CBTDEV in coordination with: HQDA MATDEV TNGDEV RSI Manager Transportability Agent Logistician MANPRINT Planner Tester Evaluator Interested MACOM	See 2. above (O&O Plan)  See 3. above (ROC)	See 2. above (O&O Plan)  See 3. above (ROC)	As Appropriate
5. Joint Service Operational Requirements (Replaces ROC for Joint programs.)	ODCSOPS (TRADOC)	ODCSOPS tasks appropriate Army organization, normally TRADOC, for Army lead JSOR.	ODCSOPS	Must be approved prior to entry into Development Proveout Phase.	As Appropriate

# PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 1 - Materiel Documents

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSER AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
6. Other Service Requirements (May replace the ROC.)	Appropriate MACOM (TRADOC)	Appropriate Army organization.	Appropriate Army Approval Authority	A formal letter with justification of other Service Requirement meeting Army requirement. Must contain an Army approved O&O Plan and cost assessment as attachments.	As Appropriate
7. Reliability, Availability, and Maintainability (RAM) Rationale Report (RRR)	TRADOC ATOD-E	MATDEV in coordination with: CBTDEV	AMC and TRADOC jointly.	Must be approved prior to approval of appropriate requirements document.	As Appropriate
- RAM Rationale Annex (RAA)/Executive Summary. (Two page excerpt of RRR to attach and forward as Annex to appropriate requirements document.)	TRADOC ATOD-E	MATDEV in coordination with: CBTDEV	Same as the appropriate requirements document for which it accompanies.	Same as the appropriate requirements document for which it accompanies.	As Appropriate
8. Training Device Requirement (TDR)	TRADOC ATOD-E	TNEDEV in coordination with: MATDEV	ODCSOPS for Major and DAP Programs. CBTDEV-MATDEV jointly for all other Programs.	Requirements/Tech Base Activities Phase.	As Appropriate

## PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 1 - Materiel Documents

6

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSITOR AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
- Training Device Need Statement (TDNS) (Leads to the TDR.)	TRADOC ATOD-E	TNEDEV	TRADOC	Requirements/Tech Base Activities Phase.	As Appropriate
9. Commercial Training Device Requirement (CTDR)	TRADOC ATOD-E	TNEDEV in coordination with: MATDEV	ODCSOPS for Major and DAP Programs.  CBTDEV-MATDEV jointly for all other Programs.	As Required.	As Appropriate
CTDR (MACOM Peculiar)	MACOM (TRADOC)	MACOM in coordination with: TRADOC AMC	MACOM when pro- curement costs do not exceed \$1M per year or \$5M per total procurement program.  ODCSOPS for all which exceed MACOM approval level.  ODCSOPS if either TRADOC or AMC non- concur.	As Required.	



# PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 1 - Materiel Documents

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSER AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
10. Operational Need Statement (ONS)	ODCSOPS (TRADOC)	Operational User (Submitted through chain of command to appropriate General Officer (G. O.) for approval. G. O. submits directly to HQDA.	HQDA (DAWD-FDR)	Requirements/Tech Base Activities Phase.	As Appropriate

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# PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 2 - Decision Documents

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSER AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
1. System Concept Paper (SCP)* (To be used only when Traditional Process formal Milestone I is directed in the Acquisition Strategy.)	AMC ANODE	MATDEV	SECDEF for DOD Major Programs at Traditional MS I.  AAE for DAP Programs at Traditional MS I.  MATDEV for all Other Programs at Traditional MS I.	Required for Traditional MS I. (The major decision level document for the Traditional Acquisition Process at MS I)	Updated prior to Tradi- tional MS II, where it becomes the DOP for Tradi- tional MS II and III
2. Decision Coordinating Paper (DCP)	AMC ANODE	MATDEV	SECDEF for DOD Major Programs at MS I/II.  AAE for DAP at MS I/II.  MATDEV for all Other Programs at MS I/II.  MATDEV for ALL Programs at MS III.	Required for MS I/II and III. (THE major decision level document)	Updated prior to each formal MS decision review.

## PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 2 - Decision Documents

6

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSER AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
3. Integrated Program Summary (IPS) (Required only when requested by Approval Authority to augment information presented in the DCP (or SCP*))	AMC AMODE	MAIDEV	SECDEF for DOD Major Programs at MS I/II.  AAE for DAP at MS I/II.  MAIDEV for all Other Programs at MS I/II.  MAIDEV for ALL Programs at MS III.	Required for MS I/II and III.	Updated prior to each formal MS decision review.

\*This is the only "document" requirement that is not met under the streamlined acquisition process, however, all information required by the SCP is included in the DCP requirement at Collapsed Milestone I/II when streamlined.

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# PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 3 - Program Documents

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSER AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
1. Acquisition Strategy (AS).	AMC AMCDE	MAIDEV in coordination with: OBIDEV	SEDEF for DOD Major Programs at MS I/II and III.  AAE for DAPs at MS I/II and III.  MAIDEV/OBIDEV jointly for all Other programs at MS I/II and III.	MS I/II and III.	Reviewed and updated as changes occur.  Changes must be approved by program decision authority.
- Total Life Cycle Competition Strategy (TLOCS).	AMC AMCOP	MAIDEV	Same as for Acquisition Strategy.	TLOCS development must begin at Program Initiation.  Required for MS I/II.	Updated at MS III.
2. Acquisition Plan (AP).	AMC AMCDE	MAIDEV	ASA(RDA) for DOD Major Programs and DAP. USMC for all Other programs.	Prepared prior to MS I/II.	Updated prior to MS III.

## PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 3 - Program Documents

6

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSITOR AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
3. Concept Formulation Package (CFP). The CFP consists of the following documentation:	TRADOC ATOR-M	CBTDEV in coordination with: MATDEV (or STIF/SSG, if convened).	TRADOC or STIF/SSG Convening Authority.	Summarizes Technology CodeA Updated Base Activities Phase on exception results.  Prior to Development Proveout Phase.	MS III.
a. Trade-Off Determination (TOD).		MATDEV			
b. Trade-Off Analysis (TOA).		CBTDEV in coordination with: MATDEV			
c. Best Technical Approach (BTA).		MATDEV in coordination with: CBTDEV			
d. Cost and Operational Effectiveness Analysis/Abbreviated Analysis (COEA/AA).		CBTDEV in coordination with: MATDEV	SECDEF for DOD Major Programs at MS I/II and III.  AAE for DAPs at MS I/II and III.  MATDEV for all Other Programs at MS I/II and III.	MS I/II and III.	Reviewed and updated as changes occur.  Changes must be approved by program decision authority.



# PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 3 - Program Documents

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROponent AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
4. Cost and Training Effectiveness Analysis (CTEA).	TRADOC ATCD-E	MATDEV in coordination with: CBTDEV	SECDEF for DOD Major Programs at MS I/II and III.  AAE for DAPs at MS I/II and III.  MATDEV for all Other programs at MS I/II and III.	MS I/II and III.	Reviewed and updated as changes occur. Changes must be approved by appropriate decision authority.
5. Baseline Cost Estimate	AMC ANORM	MATDEV	Comptroller of the Army	MS I/II.	Ongoing Updates

## PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 3 - Program Documents

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSER AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
6. Test and Evaluation Master Plan (TEMP).	AMC/TRADOC (AMCOA/ ATCD-T)	AMC/TRADOC MATDEV in coordination with: TIMG Members.	SECDEF for DOD Major Programs at MS I/II and III.  AAE for DAPs at MS I/II and III.  MATDEV for all Other programs at MS I/II and III.	MS I/II and MS III.	Reviewed and updated as changes occur and prior to each formal MS decision review.
- Master Evaluation Plan (MEP). (Referenced or annexed to the TEMP, as appropriate.)		Operational Independent Evaluator			
- - Independent Evalua- tion Plan (IEP). (Serves as input to the MEP.)		Technical Independent Evaluator and Operational Independent Evaluator in coordination with: TIMG Members			
- Test Design Plan. (Derived from the MEP.) (Referenced or annexed to the TEMP, as appropriate.)		MATDEV in coordination with: TIMG Members			
- Integrated Test Schedule (ITS). (Referenced or annexed to the TEMP, as appropriate.)		MATDEV in coordination with: TIMG Members			

# PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 3 - Program Documents

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSER AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
7. Detailed Test Plan (DTP). (Derived from and implements TDP.)	AMC/TRADOC (AMCQA/ ATOD-T)	Testing Organization in coordination with: TIMG Members	Internal to testing organization.	Testing Operations.	As Appropriate.
8. Outline Test Plan (OTP).	AMC/TRADOC (AMCQA/ ATOD-T)	Operational Tester (For technical testing, prepared by Technical Tester, when supplementary user troops are required.)	USAOEA (TSARC)	User Testing.	As Appropriate.
9. Test Incident Report (TIR). (Becomes Corrective Action Report.)	AMC AMCQA	Organization conducting the testing (government or contractor).	Must be forwarded to DOT&E and DUSRE within 24 hours following incident.	Supports corrective action review process.	Updated throughout Corrective Action review process.
10. Operational Test Readiness Statement (OTRS).	AMC/TRADOC MATDEV, CBTDDEV, and TNGDEV (AMCQA/ ATOD-T)	prior to the start of operational testing.	Must be prepared prior to start of operational testing.	Operational testing.	As Appropriate.
11. Test Report (TR).	AMC AMCQA	Test and Operational Organiza- tions conducting the testing.	Technical and Opera- tional Testers.	Provided to DOT&E and DUSRE 45 days prior to MS decision review.	As Appropriate.

## PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 3 - Program Documents

9

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSER AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
12. Independent Evaluation Report (IER).	AMC/TRADOC (AMCQV/ ATOD-T)	Technical and Operational Inde- pendent Evaluator.	Technical and Operational Inde- pendent Evaluator.	Prepared for each test during each phase of the acqui- sition process.	Under the Continuous Evaluation Concept, the Independent Evaluators periodically update their evaluation of the sys.
13. System Safety Management Plan (SSMP).	AMC AMCSF	MATDEV in coordination with: CBTDEV	Safety Director providing system safety services.	Development Proceed Phase.	As Appropriate.
14. Safety Assessment Report and Health Hazards Assessment (SAR/HHA).	AMC AMCSF	MATDEV	Evaluated by ODCSPER and TSG.	MS I/II.	Updated at MS III.
15. Safety Release (SR).	AMC/TRADOC (AMCQV/ ATOD-T)	Technical and Operational Organizations conducting the testing.	Command or Agency responsible for testing.	Continues throughout the acquisition process as an element of the normal test program for evalua- tion at each MS.	As Appropriate.

# PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 3 - Program Documents

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSER AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
16. Integrated Logistic Support Plan (ILSP).	AMC AMCSM	MATDEV in coordination with: CBTDEV USALEA ILS Participants	AMC	MS I/II and MS III.	As changes occur.
17. Basis of Issue Plan (BOIP).	TRADOC ATCD-E	MATDEV in coordination with: CBTDEV	ODCSOPS	Prior to MS I/II.	As changes occur.
18. Qualitative, Quantitative and Personnel Requirements Information (QQPRI).	TRADOC ATCD-E	MATDEV in coordination with: CBTDEV	ODCSOPS (ODCSPER (MOS decision))	Prior to MS I/II.	As changes occur.
19. Electromagnetic Spectrum Allocation Request (ESAR).	AMC AMCOA	MATDEV	ODCSOPS	Conducted as part of the system's/item's normal life cycle Testing and Evaluation Program.	As Appropriate.
20. Transportability Report/Transportability Engineering Analysis (TR/TEA).	AMC AMCDE	Military Traffic Management Command, Transportation Engineering Agency (MTMCTEA)	CDR, MTMCTEA	Initial TR prepared prior to entry into Proof of Principle Phase.	TR prepared prior to MS I/II and III.
21. Materiel Fielding Plan (MFP).	AMC AMCSM	MATDEV Gaining Command Logistician	AMC MSC and gaining MACOM jointly.	Development Proveout Phase.	As Appropriate.

## PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 3 - Program Documents

9

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSER AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	FINAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
22. Production Readiness Plan (PRP).	AMC AMCPD	MATDEV	USAMC (AMCPD) in coordination with IBEA (APESO).	Development Proceed Phase.	As Appropriate.
23. Product Assurance Plan (PAP).	AMC AMCQA	MATDEV	USAMC (AMCQA)	Proof of Principle Phase.	As Appropriate.
24. Environmental Assessment/ Environmental Impact Statement (EA/EIS).	AMC AMCDE	MATDEV	EA and EIS will be sent with other decision documents in accordance with AR 200-2.	MS I/II.	Updated at MS III.
25. International Armaments Cooperative Opportunities Plan (IACOP). - International Military Rationalization, Standard- ization, and Interoperability (RSI) Plan.	AMC AMCDS	USAMC in coordination with: TRADOC	ODCSRDA	Prepared prior to Proof of Principle Phase.	Updated prior to MS I/II and III.
26. Computer Resource Manage- ment Plan (CRMP).	AMC AMCDE	MATDEV	USAMC (AMCDE-SB)	Prepared prior to Proof of Principle Phase.	Updated prior to MS I/II and III.

# PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 3 - Program Documents

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSER AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
27. System Manpower and Personnel Integration (MANPRINT) Management Plan (SMP). - Human Factors Engineering/Human Factors Engineering Analysis (HFE/HFEA). (Serves as input to the SMP.)	TRADOC ATOD-E	CBTDEV in coordination with: MATDEV	TRADOC	Prepared prior to MS I/II.	Updated prior to MS III.
	AMC AMODE	MATDEV in coordination with: CBTDEV	Reviewed by ODOSPER	Prepared prior to MS I/II.	Updated prior to MS III.
28. Configuration Management Plan (CMP).	AMC AMCPD	MATDEV	AMC	Prepared annually.	As Appropriate
29. Technical Data Package Management Plan (TDPMP).	AMC AMCPD	MATDEV	AMC MSC Commander	Prepared prior to MS I/II. (Reviewed annually by USAMC)	Updated prior to MS III.
30. New Equipment Training Plan (NETP).	TRADOC ATOD-E	MATDEV in coordination with: CBTDEV Other MACOM as appropriate	HQDA (ODOSOPS)	Development Provenance Phase. (Reviewed semi-annually by a Training Support Work Group chaired by HQDA (ODOSOPS).)	As Appropriate

## PROGRAM MANAGEMENT DOCUMENTATION

## PART III, Section 3 - Program Documents

9

DOCUMENTATION/ SUPPORTING DOCUMENTS	PROPOSER AUTHORITY	INITIAL PREPARATION RESPONSIBILITY	APPROVAL AUTHORITY	PHASE/MILESTONE/ OTHER REQUIRED FOR	UPDATE REQUIRED
31. Individual and Collective Training Plan (ICTP).	TRADOC ATCD-E	TRADOC School/Activity in coordination with: TRADOC ILS POC USAMC PMO	HQ, TRADOC	Prepared prior to MS 1/II.  (Reviewed annually by HQ, TRADOC)	Updated prior to MS III.
32. Foreign Disclosure and Technology Security Plan (FDTSP).	AMC AMCDS	MATDEV	HQDA (DAWI-CIT)	Requirements/Technology As Base Activities Phase.	Appropriate
33. Technology Security Technical Assessment (TSTA).	AMC AMOMI	MATDEV	HQDA (DAWI-CIT)	Requirements/Technology As Base Activities Phase.	Appropriate
34. System Threat Assessment Report (STAR).  - Critical Intelligence Parameters (CIPs).	AMC AMOMI  AMC AMOMI	CBTDEV in coordination with: MATDEV  USAMC Program Manager with MSC DCSI assistance.	In accordance with AR 381-11.  AMC (AMOMI) TRADOC (DCSI) ACSI Defense Intelligence Agency (DIA)	Requirements/Technology As Base Activities Phase.  Prepared prior to MS 1/II.	As Appropriate
35. Threat Support Plan (TSP).	AMC AMOMI	USAMC MSC DCSIs TRADOC C&S Threat Manager	AMC/TRADOC DCSI ACSI for DOD Major programs and DAPs.	Prepared prior to MS 1/II.	As Appropriate



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# PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

NAME OF REVIEW/ AUTHORITY/ PROponent	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Material Acquisition Decision Process (MAUP) Reviews  AR 70-1 AR 15-14 AMC-R 70-5  AMCDE-PQ (Policy) AMCDE-PA (Execution)	Chairman: IPR - Designated by AMC Program Decision Authority ASARC - AAE JRM - DAE  IPR Membership: AMC (Chairman) TRADOC USALEA MTMC  ASARC/JRM Membership: As prescribed in AR 15-14	SCP/DOP Acquisition Strategy TEMP Changes to MRD IACOP, if required STAR TSP CIPS Safety and Health Data Sheet	MRB	None	Each formal Milestone as directed by the Program Decision Authority	Designated Program Decision Authority For IPR programs: approved jointly by MATDEV/CSTDEV through signature on the SQDM.	PDM SQDM SAQM

## PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

9

NAME OF REVIEW/ AUTHORITY/ PROPOSER	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Material Acquisition Review Board (MARB)	Chairman: HQ, AMC (DCSDEA)	Primary Review/ Approval: Draft User MRD	SRRB SDRB	MADP - IPR - ASARC - JRGB	Prior to JAG: MRD	MARB Chairman	MARB Schedule & Status Report
AMC-R 70-5	Memberships: GO/SES Board	SCP/DCP Acquisition Strategy			Pre-MDR: DCP/AS)		MARB Minutes
AMCDE-PQ (Policy)	members represent- ing each AMC DCS	Acquisition Plan		JAG/RRC	TEMP ILSP Remainder of PMD		
AMCDE-PA (Secretariat/ Execution)	functional organi- zation. Includes HQDA and TRADOC	RFP TEMP ILSP			Post-MDR: Acquisition Plan RFP		
AMCDE-S (Gray Team/ Execution)	participation. MARB membership established in like manner at AMC MSCs.	Remainder of PMD in conjunction with IPR/ASARC/ JRGB preparation:			Prior to Solicitation: Selected PIPs		
		CRMP PIP SMP OMP BCE IACOP STAR TSP CIP					

# PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

NAME OF REVIEW/ AUTHORITY/ PROPOSER	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Requirements Review Committee (RRC)	Chairman: HQ, TRADOC (ATCD-E)	OSO Plan (Major System) ROC JSOR	JAG MARB SRB	MAOP - IPR - ASARC - JMB	Prior to CG, TRADOC approval.	CG, TRADOC	CARDS DCSOD Policy Statement
-	Membership: HQ, TRADOC Staff TRADOC Proponent HQ, AMC Staff Proponent MSC						
ATCD-ET (Policy/ Execution)							

## PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

NAME OF REVIEW/ AUTHORITY/ PROponent	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Joint Working Group (JWG)	Chairman: TRADOC Proponent	All MRD	MMA MADP - IPR - ASARC - JRM	MWP LRDAP MARB	As required to develop MRD	TRADOC Proponent Commander	RRC
AR 70-1 AR 71-9	Co-Chairman: Proponent MSC						
ATOD-E (Policy)	Membership: HQ, TRADOC Staff TRADOC Proponent HQ, AMC Staff Proponent MSC						

# PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

NAME OF REVIEW/ AUTHORITY/ PROponent	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Specification and Data Review Board (SDRB)  DODD 5000.43  AWCPD (Policy)	Chairman: O-6 or GM/GS-15 at MSC and functional areas as required.	Specifications/ Data Require- ments	Acquisition Strategy Acquisition Plan Spec and Data Call Draft Spec and Data Contract Requirements	Final Spec and Data Contract Require- ments	Prior to sending Spec and Data Requirements Package to Procurement for generating the solicitation.	SDRB Chairman	Not Specified

## PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

6

NAME OF REVIEW/ AUTHORITY/ PROPOSER	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
System Requirements Review Board (SRRB)	Chairman: To be Determined	Draft MRD System Specifications	SRRB	SRRB MRB	Prior to MRB review: MRD	SRRB Chairman	Not Specified
AR 70-XX	Membership: MATDEV/CBTDEV				Prior to MRB review of RFP (Solicitation): System Specifications		
AMDE-PQ (Policy)	Functional Area Experts						
AMCPD (Execution)	SRRB Membership						
ATCD-E							



# PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

NAME OF REVIEW/ AUTHORITY/ PROPOSER	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Integrated Logistic System (ILS) Manage- ment Team	Chairman: MSC or PM ILS Manager	ILSP Other PMDs	LSA Review Team	MADP MARB	Not specified, however, must be established prior to Mile- stone I.	ILS Manager	Not Specified
AR 700-127 AMC-R 700-15 AMCSM (Policy)	Membership: Combat Developer Logistician Trainer Testers Evaluators COE Other MSCs as appropriate. DLA DESCOM AMSAA MRSA HQ, AMC DCSMT Rep. Contractor USACTA USATSG Other Services as required.						

## PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

9

NAME OF REVIEW/ AUTHORITY/ PROPOONENT	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Logistic Support Analysis (LSA) Review	Chairman: MSC or PM ILS Manager	Logistic Support Analysis Record (LSAR)	LSA Guidance Conference ILSMT	LSA/LSAR Contracting	Initial 30-90 Days after Contract (DAC), "Regularly"	ILS Manager	Contract Administra- tion
AR 700-127	Membership:						
AWC-R 700-15	Participating						
MIL STD 1388-2A	MSC and Other						
AWC-P 700-55	Services						
	functional area						
	experts and ILS						
	Managers.						
	User						
	Combat Developer						
	Trainer						
	USALEA						
	MRSA						
	Tester						
	Independent						
	Evaluator						
	USACTA						
	Contractors						
	Others as						
	appropriate.						

# PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

NAME OF REVIEW/ AUTHORITY/ PROPOONENT	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
LSA Guidance Conference AR 700-127 AMC-R 700-15 MIL STD 1388-2A AMC-P 700-55 AMCSM (Policy)	Chairman: MSC ILS Manager  Membership: Participating ILS Managers. Functional area experts as required.	Contractual Requirements for LSA/LSAR	Contracting Provisioning	LSA Review Teams Provisioning Conferences Guidance Conferences	One-Time DAC 30-90	ILS Manager  Contract- ing Officer	Contract Administra- tion

## PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

9

NAME OF REVIEW/ AUTHORITY/ PROPOSER	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Provisioning Guidance Conference AR 700-18 AMC-P 700-10 MIL STD 1388-2A MIL STD 1561-B AMCSN (Policy)	Chairman: MSC Maintenance Engineer/ Provisioner  Membership: Functional area experts with background in data requirements in provisioning deliverables.	Contractual Requirements for Provision- ing	LSA/LSAR Contracting	Provision- ing breakout Cataloging Technical Publica- tions	One-Time 30-90 DAC	Chairman Contract- ing Officer	Contract Administra- tion

# PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

NAME OF REVIEW/ AUTHORITY/ PROPOSER	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Solicitation Review Board	Chairman: DCSPP	RFP/RFQ	Acquisition Strategy Acquisition Plan	Source Selection MARB	Prior to MARB and release of RFP	Con- rolling Agency (HCA) or Designee	HCA Procurement
DA AFARS 1-690	Membership: AMCQA AMCLO AMCSB						
AMCOP (Policy)							

## PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

9

NAME OF REVIEW/ AUTHORITY/ PROPOSER	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Provisioning Conference  AR 700-18 AMC-P 700-10 MIL STD 1388-2A MIL STD-1561-B  AMCSN (Policy)	Chairman: MSC Maintenance Engineer/ Provisioner  Membership: Functional area experts with background in cataloging and technical publications.	Provisioning Technical Documentation	LSA Review Team Functional Reviews	Provision- ing breakout Cataloging Technical Publica- tions	Contractually Specified	Maint. Engineer Provisioner	Contract Administra- tion

# PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

NAME OF REVIEW/ AUTHORITY/ PROPOSER	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Business Clearance Review Board	Chairman: DCSPP	Business Aspects Contract for Proposals Audits	Audit Pre- negotiation objectives	Negative Objectives MARB	Before Negotiations	DCSPP	DCSPP
AMC-FAR Supplement 1.602	Membership: Functional area experts with background in pricing and legal.						
AMCOP (Policy)							

## PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

9

NAME OF REVIEW/ AUTHORITY/ PROPOSER	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Board of Awards AFARS 1-691 AMCOP (Policy)	Chairman: DCSPP  Membership: AMCCC AMCPD AMCLD Functional area expert with background in pricing.	Contract	Solicitation Source Selection	Contract Award/ Performance	Before Contract Award	DCSPP	HCA



# PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

NAME OF REVIEW/ AUTHORITY/ PROPOONENT	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Test Integration Working Group (TILWG)	Chairman: PM (Material Developer)	Test Issues and Criteria IEP/MEP	RAM Requirements Working Group	MAP MARB	Pre-Milestone Review: TEMP Acquisition Strategy RFP	Program Decision Authority	Not Specified
AR 70-10	Memberships: Combat Developer Technical Tester	TDP ITS TEMP				Plus, for Major Systems, DOT&E and DUSURE (T&E)	
AWQQA (Policy)	Technical Independent Evaluator Operational Tester Operational Independent Evaluator PLUS (When applicable): ACCS System Engineer PM Smoke/Obscurants MIMCTEA Additional Particip- pants (When appropriate): TILSMT IME Representative Contractor Other interested parties Subgroups: RAM Interfacing Groups: Technical Test Readiness and Operational Test Readiness Review Working Groups Computer Resources Working Group Data Analysis Group System Safety Working Group	DTP (Optional) T&E portions of Acquisition Strategy and RFP				On lesser issues, the PM	

956

# PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

6

NAME OF REVIEW/ AUTHORITY/ PROponent	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Technology Integration Steering Committee (TISC)	Chairman: LABCOM (DCSLD)	Technology Candidates sufficiently mature for systems analysis and entry into Proof of Principle Phase.	CBRS TBAG MWP	MMRB CBRS MWP	Twice per year	TISC Membership	MMRB MMRB
AR 70-1	Membership: HQ AMC (DCSDEA) HQ TRADOC (DCSCD) CG, TCATA						
ANGLD (Policy)							
ANGLD-PM							
ATCD-G							
LABCOM: ANSLC-AS-SE							
		Reviews can- didate system concepts, demo plans, and accompanying cost estimates.					
		Matches Tech opportunities with Army Thrusts and emerging needs.					

# PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

NAME OF REVIEW/ AUTHORITY/ PROPOSER	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Technology Base Advisory Group (TBAG)	Chairman: LABCOM Technical Director	Technology Base Investment Strategies for: -NS/NS	TISC MAMP	MAMP TISC	Twice per year	TBAG Chairman	MAMP Technology Investment Strategy
-	Membership: MSC Technical Directors	-Emerging Technologies					
CG, LABCOM	Director, AMSAA	-Generic Tech Priorities/ Chronic					
AMCLD (Policy)	Technical Director, TRADOC	Problems					
LABCOM: AMSLC-TP	Assistant Director	-Supporting Analytical Capabilities					

## PART IV - Requirements/PMD Review Forums

NAME OF REVIEW/ AUTHORITY/ PROPOSER	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Mission Area Materiel Plan (MMP) Process	N/A	System Strategies across all Mission Areas	TBAG TISC DA LRRDAP Previous MMP Mission Area Development Plans BDP	DA LRRDAP TISC	Annually	Joint AMC- TRADOC	Budget Review
AR 70-1		- Program - Budget					Program Review
ANODE-PM (Policy)		System Priorities					Mission Area Inte- gration Team (MALT)
ATQD-E							Approved MMP/LRRDAP

# PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

NAME OF REVIEW/ AUTHORITY/ PROPOSER	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Source Selection Evaluation Board (SSEB) FAR 15.6 AR 715-6 ANOPP (Policy)	Chairman: As Appointed  Membership: TRADOC (ATOD) (When required) Functional area experts with back- ground in logistics, cost analysis, operations, contract, legal, and technical.	Contractor Proposals	MARB MARP: - IPR - ASARC - JNMB	Board of Awards Business Clear- ance Review Board	Prior to Source Selection	SSA	SSAC SSA

## PROGRAM MANAGEMENT DOCUMENTATION

## PART IV - Requirements/PMD Review Forums

60

NAME OF REVIEW/ AUTHORITY/ PROPOONENT	REVIEW CHAIRMAN AND MEMBERSHIP	REQUIREMENTS/ DOCUMENTS REVIEWED	SUPPORTING PROCESSES/ REVIEWS	PROCESSES/ REVIEWS SUPPORTED	REVIEW POINTS	APPROVING AUTHORITY	CONTROL/ DISCIPLINE
Configuration Control Board (CCB) AR 70-37 AWC Supp 1 to AR 70-37 AMCPD-SE (Policy)	Chairman: Configuration Manager  Membership: Functional area experts as required.	Engineering Change Proposals (ECPs) Request for Waivers (RFW) Request for Deviations (RFD) Value Engineering Change Proposals (VECP) Engineering Release Record (ERR)	TDP Change Process	Configuration Management	Upon receipt of ECP, RFW, RFD, VECP, ERR.	Configura- tion Manager	Configura- tion Man- agement



## **Chapter 10**



### **CONCEPT FORMULATION PACKAGE (CFP)**

**Chapter Guide**

This chapter describes preparation of the Concept Formulation Package (CFP) in terms of the Army Streamlined Acquisition Process (ASAP). The CFP will begin early enough in the process to be completed during the Proof of Principle Phase in preparation for entry into the Development Proveout Phase.

The CFP establishes technical and economic specifications to satisfy the stated requirement. It is prepared by TRADOC and AMC proponents or by a Special Task Force (STF) or a Special Study Group (SSG), formed for that purpose. It is used to document the concept formulation effort. The CFP consists of the Trade-Off Determination (TOD), Trade-Off Analysis (TOA), Best Technical Approach (BTA), and Cost and Operational Effectiveness Analysis (COEA) or an Abbreviated Analysis (AA). They are generally accomplished in the order listed although overlap may occur.

The TOD, TOA, and BTA are used to provide analytic rationale for, as well as technically document, the system concept(s) which are candidates to satisfy the requirement. The COEA is used to document the selection of the preferred candidate to meet the requirement based on cost and effectiveness.

**TRADE-OFF DETERMINATION (TOD).** A document prepared by the AMC proponent that contains: (1) a description of the individual technical approach, considering proposed product improvement and procurement of nondevelopment systems (e.g., commercial, other Service, other nation) as an alternative to new development; (2) evidence that the proposed technical approach is engineering rather than experimental, giving the technical risks; (3) trade-offs for the suggested approach; (4) estimated life-cycle costs, RAM driven O&S costs and scheduling estimates as related to acquisition of the item; and (5) the recommended technical approach. Included are technical analyses or trade-offs, risks, capabilities needed, costs, schedules, ILS requirements, estimated total Army manpower requirements, health, safety and human factors engineering requirements and environmental and ecological factors.

**TRADE-OFF ANALYSIS (TOA).** A document prepared by the TRADOC proponent assisted, as needed, by the AMC MSC proponent that contains: (1) mission and performance envelopes with justification and rationale; (2) analysis of system trade-offs, risks, capabilities, estimated total Army manpower requirements, strategies, costs, schedules and logistic support; (3) selection of the best approach from an operational and ILS aspect; and (4) setting of environmental and ecological factors, health, safety, and HFE requirements that the Army must face in fielding the program.



## Chapter Guide

BEST TECHNICAL APPROACH (BTA). A document prepared by the AMC MSC proponent assisted, as needed, by the TRADOC proponent that contains: (1) description of the best technical approach and ILS concepts based on the results of the TOD and TOA; (2) evidence that the proposed best technical approach is engineering rather than experimental; (3) estimated cost (RDTE, OMA, and MCA), total Army manpower requirements, procurement, and scheduling estimates; (4) recommendation on whether the development should be project managed; and (5) draft Environmental Impact Statement.

COST AND OPERATIONAL-EFFECTIVENESS ANALYSIS (COEA). The COEA is prepared by the TRADOC proponent assisted, as needed, by the AMC MSC proponent during the Proof of Principle Phase prior to entry into the Development Proveout Phase. The COEA documents the investigation of comparative effectiveness of alternative means of meeting a need/requirement; and the cost of developing, producing, distributing and sustaining each alternative in a military environment. It considers the increased effectiveness attributable to the alternative systems. It describes: tasks and missions to be performed; threat and conditions under which the task must be performed; programed capabilities to perform tasks and resulting deficiencies; extent to which alternatives remedy mission deficiencies; logistic support concept; MANPRINT concept; training support concept; and a cost analysis which includes the Life Cycle Costs (LCC) and Total Comparative Costs (TCC) for each alternative. Personnel costs will be displayed separately from system costs. A logistical impact study will be included as part of the COEA cost analysis.

A COEA for an IPR level program is referred to as an AA and is prepared by the TRADOC and AMC proponents. It is a constrained effort largely done in-house with one to two (1-2) staff years of effort. The TOD, TOA, and BTA analyses conducted to support an AA need not be as formal or rigorous as those conducted prior to and in support of a COEA for DAP and DOD MAJOR PROGRAMS. The same thought processes, however, must be used. Because of the reduced level of effort permitted for an AA, it must focus on the key issues and provide the appropriate measures of discrimination among alternatives. An AA contains the minimum essential treatment of effectiveness and cost necessary to support a decision about the system under consideration in presentations to the IPR decision body. It is usually a document of ten to twenty (10-20) pages.

The COEA or AA will be updated during the Development Proveout Phase only if significant changes have occurred in the mission, threat, technology or alternatives. Updates will be done on an exceptional basis prior to the production/acquisition decision.

## Chapter Guide

A Cost and Training Effectiveness Analysis (CTEA) is generally conducted in conjunction with a COEA to compare alternative training programs for the developing system. The development of the analysis parallels that of the COEA or AA. The CTEA replaces the COEA for development of unique training devices not associated with a system.

## Responsibilities

- TRADOC -- conduct and report the TOA and COEA.
  - assist AMC in conduct of BTA
- AMC -- conduct and report the TOD and BTA
  - assist TRADOC in conduct of TOA & COEA

## Chapter Proponent Offices

- TRADOC -- ATCD-ET
- AMC -- AMCDE-PQP

## References

The following documents direct or influence the procedures used for the preparation, review and approval of the CFP.

DA	AR 5-5	TRADOC	TRADOC-R 11-7
	AR 11-18		TRADOC-R 11-8
	AR 70-1		TRADOC-R 350-4
	AR 71-9		TRADOC PAM 11-8
	AR 750-37		TRADOC Cost Handbook
	AR 1000-1	AMC	AMC-R 11-1
	DCA-P 92(R)		AMC PAM 706-101
			AMC Guide, Management & Control of COEA
			Cost

### Procedure

Detailed procedures for preparation, review, and approval of the CFP are described on the following pages in the form of descriptive paragraphs, on the left-hand pages, and corresponding flow charts on the facing pages.

Where appropriate, a "NOTE" has been added to the end of a paragraph to highlight option(s) to the action called for in the paragraph or to provide some other insight into the action described.

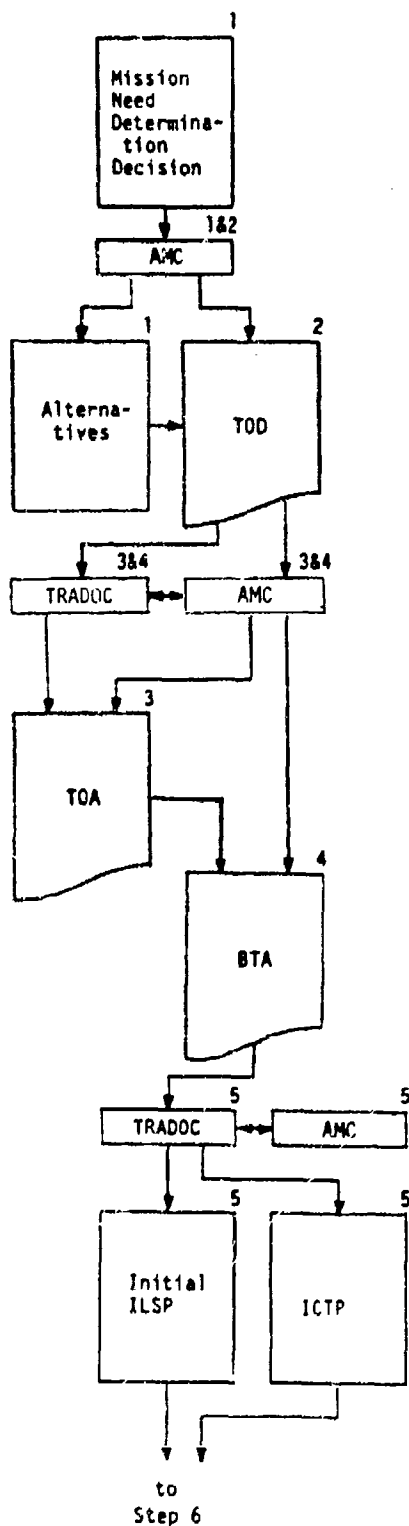
### Process Outline

1. After distribution of the first draft Operational and Organization Plan (O&O Plan) and a Justification for Major System New Start (JMSNS), when appropriate, the AMC MSC proponent begins to explore possible technical approaches and options for fulfilling the stated need.
2. Once these approaches have been identified, the MSC proponent prepares a Trade-Off Determination (TOD) which examines the technical feasibility of various alternatives, the apparent technical risks and the estimated RDTE and procurement costs and schedules.
3. Based on the TOD, the TRADOC proponent assisted, as needed, by the MSC proponent conducts a Trade-Off Analysis (TOA)). The TOA identifies, for the various alternatives, the mission and performance envelopes with justification and rationale and analyses of trade offs, risks, capabilities, costs, schedules and logistic support.
4. Based on the TOD and TOA, the MSC proponent assisted, as needed, by the TRADOC proponent identifies the Best Technical Approach (BTA) based on an analysis of trade offs among technical concepts, logistic concepts, life cycle costs and schedules.
5. Once agreement is reached on the BTA, the MSC proponent in coordination with the TRADOC proponent develops an initial Integrated Logistic Support Plan (ILSP). The TRADOC proponent develops the Individual and Collective Training Plan (ICTP).
6. The BTA, ILSP, and ICTP form the basis for the preparation, by TRADOC, of a COEA/AA.

### NOTE

Steps through 6 are conducted by a HQDA established Special Task Force (STF) or a TRADOC-established Special Study Group (SSG), if one is formed.

## Process Outline



10.5

7. When the proposed materiel solution has been sufficiently well defined, HQ TRADOC issues a COEA/AA tasker, developed, jointly among the TRADOC Analysis Command (TRAC), the DA and TRADOC sponsors, and the TRADOC proponent, to the TRADOC proponent. TRAC, assisted by the TRADOC proponent, prepares a COEA/AA study plan.

(Insert Graphic 10-2)

#### NOTE

As part of the management of the COEA/AA, HQ TRADOC may establish a Study Advisory Group (SAG), including membership from AMC, the TRADOC staff, other interested Army agencies, and other Services. The SAG may elect to establish SAG subgroups to review, advise, and assist selected portions of the COEA/AA (e.g., cost, threat, scenario, modeling).

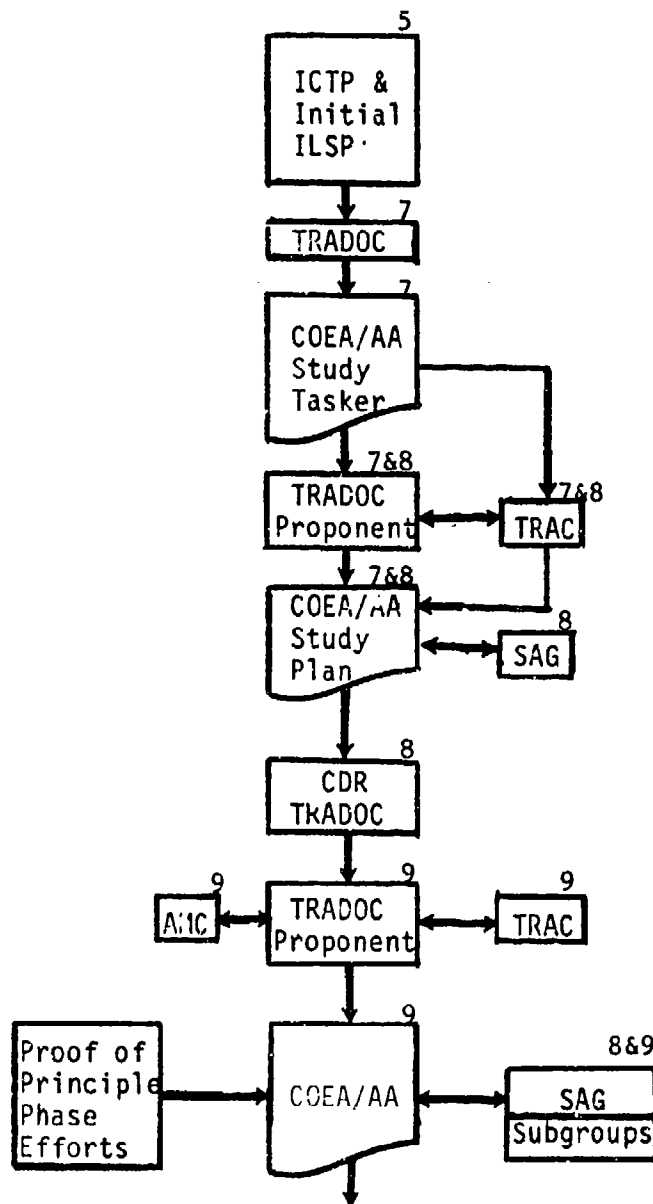
#### Process Outline

### 10.6

8. The study plan is coordinated among the study sponsors and participants, and may be circulated to or reviewed by the SAG if one is formed. The COEA study plan is revised accordingly, certified by Commander, TRAC and approved by Commander, TRADOC.

9. The TRADOC proponent is responsible for the overall study and conducts the COEA/AA adhering strictly to the approved study plan. Its central components are the effectiveness analysis based on force-on-force evaluations and the cost information. Best data is used for performance inputs into the effectiveness analysis. Data for analysis should include test results and sample data collection results of similar systems when available. For a Milestone I/II decision, where most COEA/AAs are used, OT data should be incorporated. Since a COEA may be a lengthy process and OT data may not be available until shortly before the review process, it may be necessary to make excursions to band the quantities within which the test data are anticipated to fall. The completed COEA is certified by Commander TRAC prior to its approval by Commander, TRADOC. The completed AA is also certified by TRAC before it is approved by the proponent center commander. The COEA and AA are provided to the AMC community, and may be used by the PM to assist him in his presentation.

## Process Outline



10.7

## NOTE

A COEA/AA is required to support the first Milestone Decision Review (MDR) whether MDR I or MDRI/II. The COEA/AA will be updated for subsequent MDR only if significant changes in the mission, threat, technology, or alternatives have occurred. Updates to support MDR III will be on an exception basis.

## **Chapter 11**

### **MANPOWER AND PERSONNEL INTEGRATION (MANPRINT)**



## Chapter Guide

This chapter outlines the scope, objectives, organizational responsibilities, and principal activities of Manpower and Personnel Integration (MANPRINT) in the materiel acquisition process.

MANPRINT refers to the comprehensive technical effort to support system effectiveness by integrating into the materiel development and acquisition process all relevant information concerning--

- a. Manpower.
- b. Personnel.
- c. Training.
- d. Human Factors Engineering.
- e. System Safety.
- f. Health Hazards.

**11.1**

The six individual domains comprising the concept of MANPRINT are to be applied and integrated throughout the development of new materiel systems and hardware.

The objectives of the MANPRINT program are to--

a. Influence soldier-materiel system design for optimum total system performance by considering human performance and reliability issues related to manpower, personnel, training, human factors engineering, system safety, and health hazards before making a functional allocation of tasks among people, hardware, and software.

b. Ensure that Army materiel systems and concepts for their employment conform to the capabilities and limitations of the fully-equipped soldier to operate, maintain, supply, and support the materiel in its operational environment. This includes the ability of the soldier-machine system to survive nuclear, biological, and chemical attacks consistent with tactical requirements and logistic capabilities.

c. Assist the Army trainer in determining, designing, developing, and conducting sufficient, necessary, and integrated Army and joint service training.

## Chapter Guide

d. Improve control of total life-cycle costs of soldier-materiel systems by ensuring consideration of the costs of personnel resources and training for alternative systems during the conceptual stages and for the selected system during subsequent stages of acquisition.

e. Ensure (through studies, analyses, basic and applied research in human factors engineering, soldier-materiel system analysis, experimental, psysiological, and psychophysical psychology), that equipment designs and operational concept are compatible with the limits of operators and maintainers defined in the target audience description.

f. Develop a unified, integrated MANPRINT database to define ranges of human performance. Compare these ranges against system performance and provide for the timely development of trained personnel.

g. Provide MANPRINT data for the development of manuals, training, media, and technical publications. Ensure that the content of these publications matches the soldier capability in aptitude, education, and training to perform the operator/maintainer tasks.

h. Apply MANPRINT concepts with current educational technology to design and develop school and unit level training, embedded training, and training devices.

i. Influence the manpower, personnel, and training (MPT) related objectives of the ILS process.

j. Integrate combat development and technology base information systems with personnel long-range planning.

k. Ensure that personnel trained for specific force modernization systems (by Military Occupational Specialty (MOS) and Assigned Specialty Identifier (ASI)) are assigned to units and positions for which trained and that they are assigned in sufficient quantity to support fielding and sustainment.

l. Ensure integration of MANPRINT test and evaluation requirements objectives, issues, and criteria into the Test and Evaluation Master Plan (TEMP). Ensure that MANPRINT information from tests and evaluations is fully considered in hardware design decisions and the materiel release decision process.

## Chapter Guide

The Army is implementing MANPRINT in all materiel acquisitions, from major weapons systems to product improvement (PI) and non-developmental item (NDI) acquisitions. The Army has put in place an intensive front-end analysis effort to identify realistic MANPRINT goals and constraints which will carry over into contract design requirements. As an acquisition proceeds, the contractor will be required to employ various predictive and tradeoff design techniques to demonstrate that design options have accounted for the MANPRINT requirements. The Army decision-makers will not permit MANPRINT goals and constraints to be altered without knowing the consequences and assessing the Army's ability to adapt. Army decisionmakers will expect clear and convincing evidence from the contractor and from Army test and evaluation to demonstrate that human performance and reliability requirements have been achieved.

## Responsibilities

11.3

## AMC:

- a. Integrate MANPRINT requirements into each phase of the materiel acquisition process.
- b. Establish and maintain MANPRINT database.
- c. Attend MANPRINT Joint Working Group (MJWG) meetings.
- d. Develop, coordinate, and implement human factors engineering (HFE), health hazards, system safety, and training device design standards and procedures.
- e. Ensure integration of MANPRINT into the TEMP, in coordination with TRADOC and the Operational Test and Evaluation Agency (OTEA).
- f. Ensure incorporation of MANPRINT provisions in materiel system contracts.
- g. Prepare, in coordination with other commands, a Human Factors Engineering Analysis (HFEA) on all programs unless waived.
- h. Provide MANPRINT support to TRADOC prior to Milestone I (MI) and lead MANPRINT efforts after MI with TRADOC support.

## Responsibilities

- i. Include MANPRINT as a major area in source selection evaluation plan.
- j. Participate in Special Task Force (STF)/Special Study Group (SSG).
- k. Provide a system MANPRINT manager for all AMC-developed materiel systems.
- l. Provide system safety analysis input to HFEAs throughout the life cycle of the materiel system.
- m. Provide necessary data to request and obtain The Surgeon General health hazard assessments (HHA) in accordance with AR 40-10. Provide HHA data to HFEAs throughout the life cycle of the materiel acquisition program.

## TRADOC:

## 11.4

- a. Ensure MANPRINT is considered and reported in Mission Area Analysis (MAA), doctrinal, combat, and training developments.
- b. Develop target audience descriptions.
- c. Develop and coordinate with the materiel developer System MANPRINT Management Plan (SMMP).
- d. Coordinate and provide MANPRINT information to the materiel developer for execution in all materiel programs.
- e. Ensure requirements documents provided under AR 71-9 include adequate specification of MANPRINT requirements and constraints.
- f. Ensure MANPRINT issues and criteria are provided to testers and evaluators.
- g. Conduct MJWG.

## Chapter Proponent Offices

AMC: AMCDE-P

TRADOC: ATCD-S

## References

DA: MIL-HDBK-759  
MIL-HDBK-46855  
MIL-STD-882B  
MIL-STD-1388-1A  
MIL-STD-1472  
MIL-STD-1474  
AR 40-10  
AR 70-1  
AR 70-10  
AR 71-2  
AR 71-3  
AR 71-9  
AR 350-35  
AR 350-38  
AR 385-16  
AR 602-1  
AR 602-2  
AR 700-127  
AR 1000-XX

AMC: AMC HEL Memorandum Number 70-9 (Draft)  
AMC Suppl 1 to AR 40-10

TRADOC: TRADOC R 11-7  
TRADOC R 71-12

AMC/TRADOC MANPRINT Guide

Soldier Support Center-National Capitol Region:

Early Comparability Analysis Procedural Guide, Jul 86.

HARDMAN Comparability Analysis Methodology Guide, VOL I-V, Apr 85, SSC-NCR/ARI.

System MANPRINT Management Plan (Procedural Guide), Jul 86.

## Time Constraints

Functional activities involved in completing MANPRINT requirements must achieve compatibility with the materiel system/item in the schedules and milestones they are to support. MANPRINT activities begin several months before the TRADOC proponent school initiates preparation of the first draft O&O Plan. The relationships of principal MANPRINT activities to materiel acquisition procedures are described in the timeline charts which are provided separately in the AMC/TRADOC MANPRINT Guide.

## Process Outline

1. MANPRINT will be integrated throughout the materiel acquisition process during all phases of the life cycle for developing materiel systems. Initially, the primary thrust of MANPRINT is to influence the design of the conceptual system. During later phases of the materiel acquisition process, MANPRINT focuses on the operability and supportability of the new system design. The chart on the next page summarizes the roles of the three major participants - TRADOC, AMC, and industry. It is during the Requirements and Technology Base Activities Phase that the MANPRINT effort is initiated. The MANPRINT process is managed by the MJWG, documented in the SMMP, and supported by analyses, assessments, and reports, such as Logistic Support Analysis (LSA), Early Comparability Analysis (ECA), HARDMAN, HFEA, System Safety Risk Assessment (SSRA), AR 385-16, Safety and Health Data Sheet (SHDS), AR 70-6, and Health Hazard Assessment Report (HHAR).

## 11.6

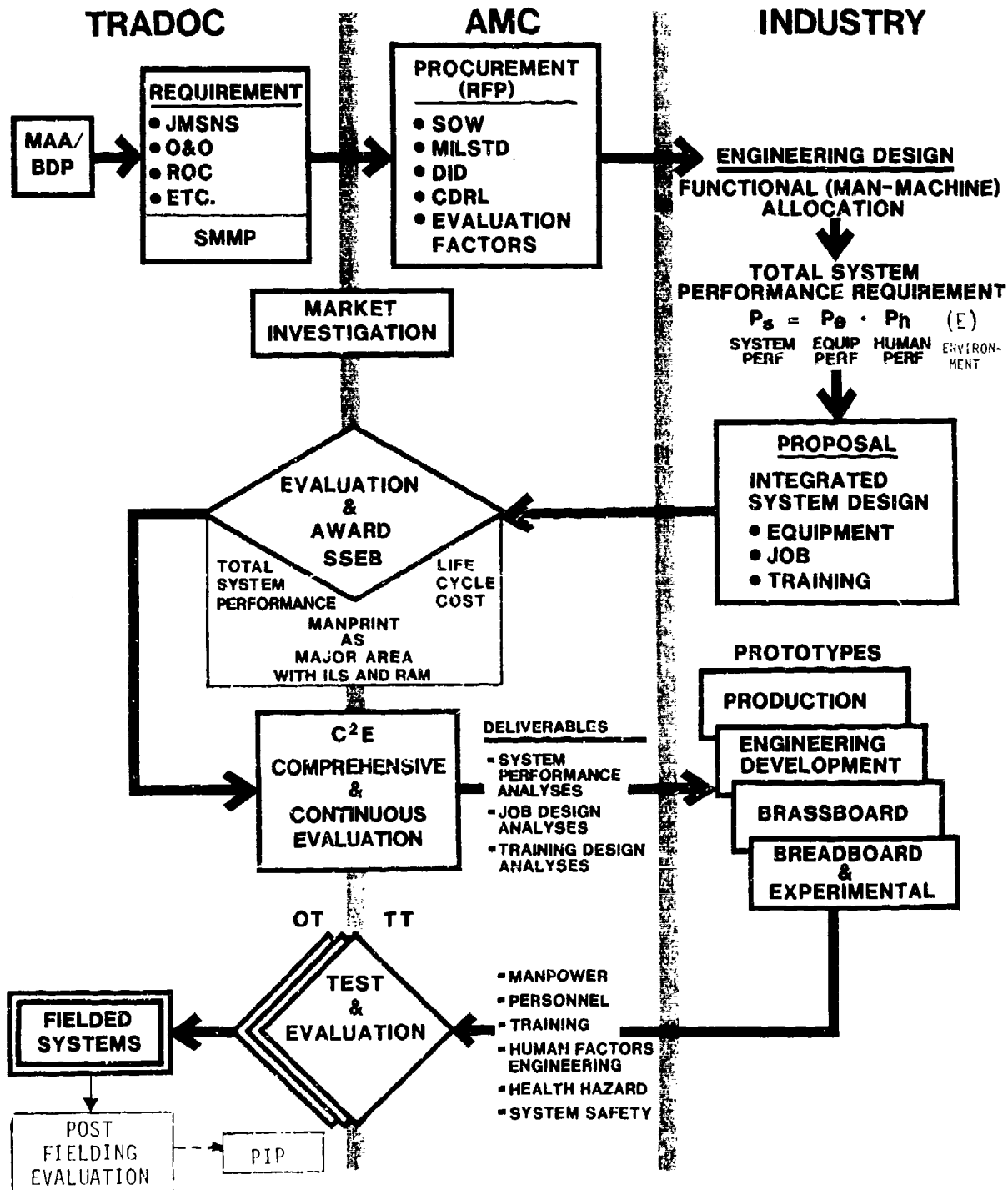
2. MANPRINT Joint Working Group (MJWG). If mission deficiencies are identified during the MAA which require the development of new or improved materiel, the TRADOC proponent Director of Combat Developments establishes a MJWG early in the requirements formulation phase while the O&O Plan is being developed. The purpose of the MJWG is to identify and manage MANPRINT issues during the materiel acquisition process. The MJWG must provide oversight on a timely basis to ensure that the MANPRINT process is carried out and that the products are meaningful. The MJWG must focus on all six domains of MANPRINT: MPT, human factors engineering, system safety, and health hazard assessment. Suggestions for representation on the MJWG are-- Directorate of Combat Developments, Directorate of Training and Doctrine, Directorate of Evaluation and Standardization, Safety Office, Proponency Office, Human Engineering Lab (HEL), Army Research Institute (ARI), Office of The Surgeon General, Integrating Centers, AMC/MS/PM MANPRINT manager, PM TRADE, AMC independent evaluator, and supporting proponent schools. The exact make-up should be determined by the proponent based on the assets available and the type of acquisition conducted.

# MANPRINT

A PARTNERSHIP  
WITH INDUSTRY

## FIELDING TOTAL SYSTEMS

11



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3. System MANPRINT Management Plan (SMMP). The proponent MJWG will initiate the SMMP. An SMMP will be initiated for all development, NDI, and PI systems. It is a living document that will be updated as needed through the materiel acquisition process. It serves as a management guide and an audit trail to identify the tasks, analyses, tradeoffs, and decisions that address MANPRINT issues. The purpose of the SMMP is to identify, integrate, and codify the system MANPRINT goals, issues, and concerns and to provide a living document for implementation of actions. The format of an SMMP begins on page 11.20. For more detailed guidance, see AMC/TRADOC MANPRINT Guide or SMMP Procedural Guide, Jul 86, SSC-NCR.

4. Target Audience Description. The target audience description is developed by the combat developer (CBTDEV) for use by combat, training, and materiel developers (MATDEVs) and contractors for development, NDI, and product improved materiel systems. Target audience descriptions provide information of each MOS that will operate, maintain, or support a new or improved item of equipment. The format and description of information to be included is contained in the AMC/TRADOC MANPRINT Guide.

5. Analyses, Assessments, and Reports to Support MANPRINT.

a. Logistic Support Analysis (LSA). The LSA tasks described in MIL-STD-1388-1A establish the requirements for generating, analyzing, and documenting ILS-related MANPRINT factors, constraints, and requirements for individual materiel development efforts. The performance of specified LSA tasks will, in some cases, satisfy MANPRINT considerations.

The relationship between MANPRINT and LSA tasks are addressed in the following tasks described in MIL-STD-1388-1A:

- (1) Task 101, Development of an Early LSA Strategy.
- (2) Task 102, LSA Plan.
- (3) Task 103, Program and Design Reviews.
- (4) Task 201, Use Study.
- (5) Task 202, Mission hardware, Software, and Support System Standardization.
- (6) Task 203, Comparative Analysis.
- (7) Task 205, Supportability and Supportability-Related Design Factors.
- (8) Task 301, Functional Requirements Identification.
- (9) Task 302, Support System Alternatives.
- (10) Task 303, Evaluation of Alternatives and Tradeoff Analysis.

## Process Outline

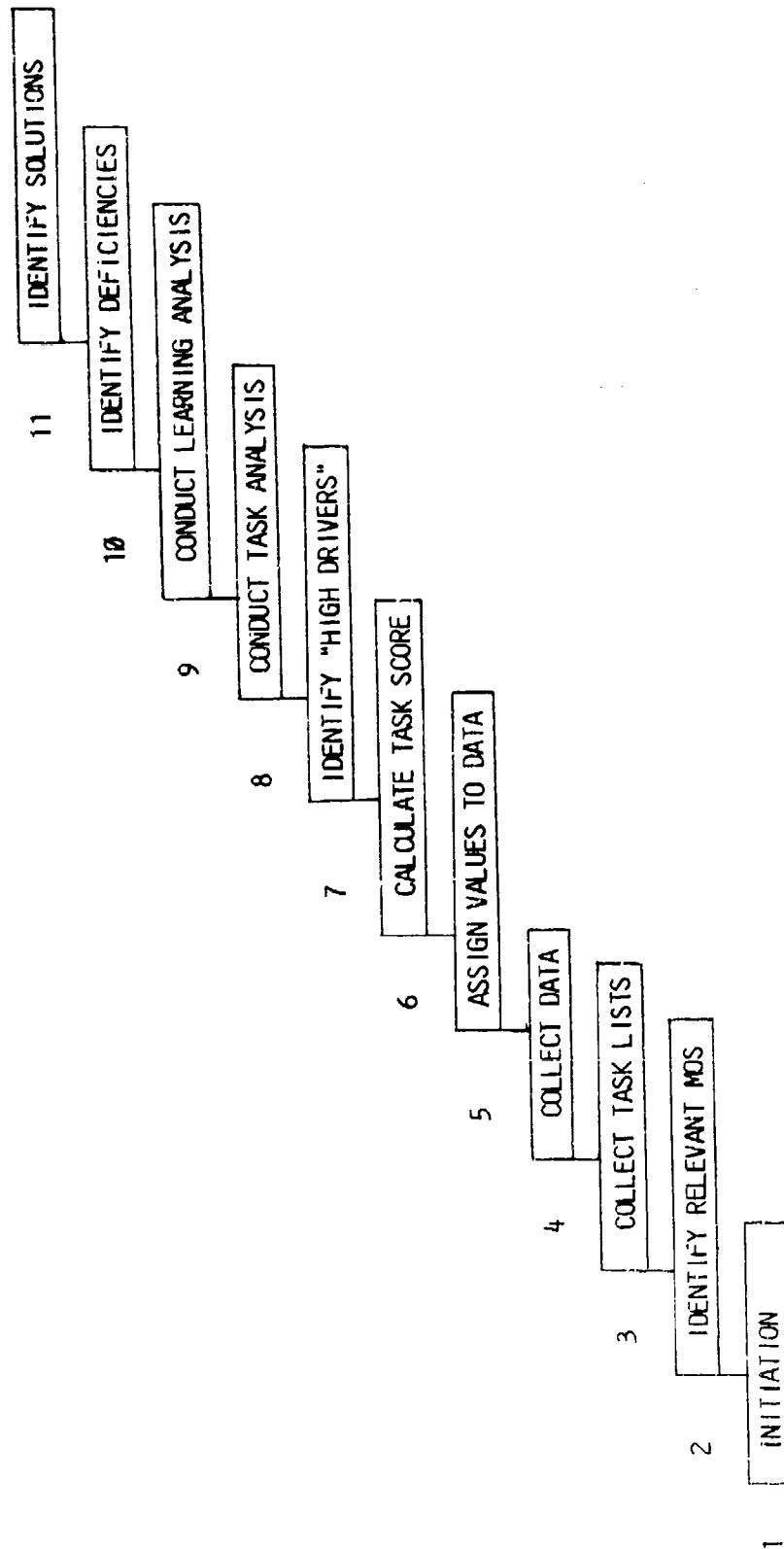
- (11) Task 401, Task Analysis.
- (12) Task 402, Early Fielding Analysis.
- (13) Task 501, Supportability Test, Evaluation and Verification.

b. Early Comparability Analysis (ECA). An ECA is appropriate when there is a predecessor item available. The ECA is designed to be used before, during, and after drafting of the O&O Plan. The ECA process should be started as soon as practicable after the MAA has identified a materiel need. One of the primary uses of ECA is the identification of those MPT "high driver" tasks that can be limited or eliminated in the design of new or improved systems. ECA also helps develop preliminary MPT constraints and/or guidelines. ECA is a lessons-learned approach with 12 steps identified on page 11.16. MJWG reviews the ECA at key points during the process and approves the final report. Details on how to conduct the ECA are contained in the ECA Procedural Guide published by SSC-NCR.

11.10

c. Hardware vs Manpower (HARDMAN) Comparability Analysis Methodology (HCM). The HARDMAN methodology is a structured approach to determine the MPT requirements of a system in the earliest phases of its development. Although the methodology can be applied throughout the LSA process, in later phases of the materiel acquisition process, it is most effective during early development stages, the "front-end" of the system's life. The basic analytic approach of the HARDMAN methodology is comparability analysis. Comparability analysis uses knowledge on similar existing systems to project the capability/performance of proposed systems. The HARDMAN methodology is composed of six major interrelated steps portrayed on page 11.17. The MJWG reviews and approves the HARDMAN analysis plan, reviews at key points the progress of the analysis, and approves the final report.

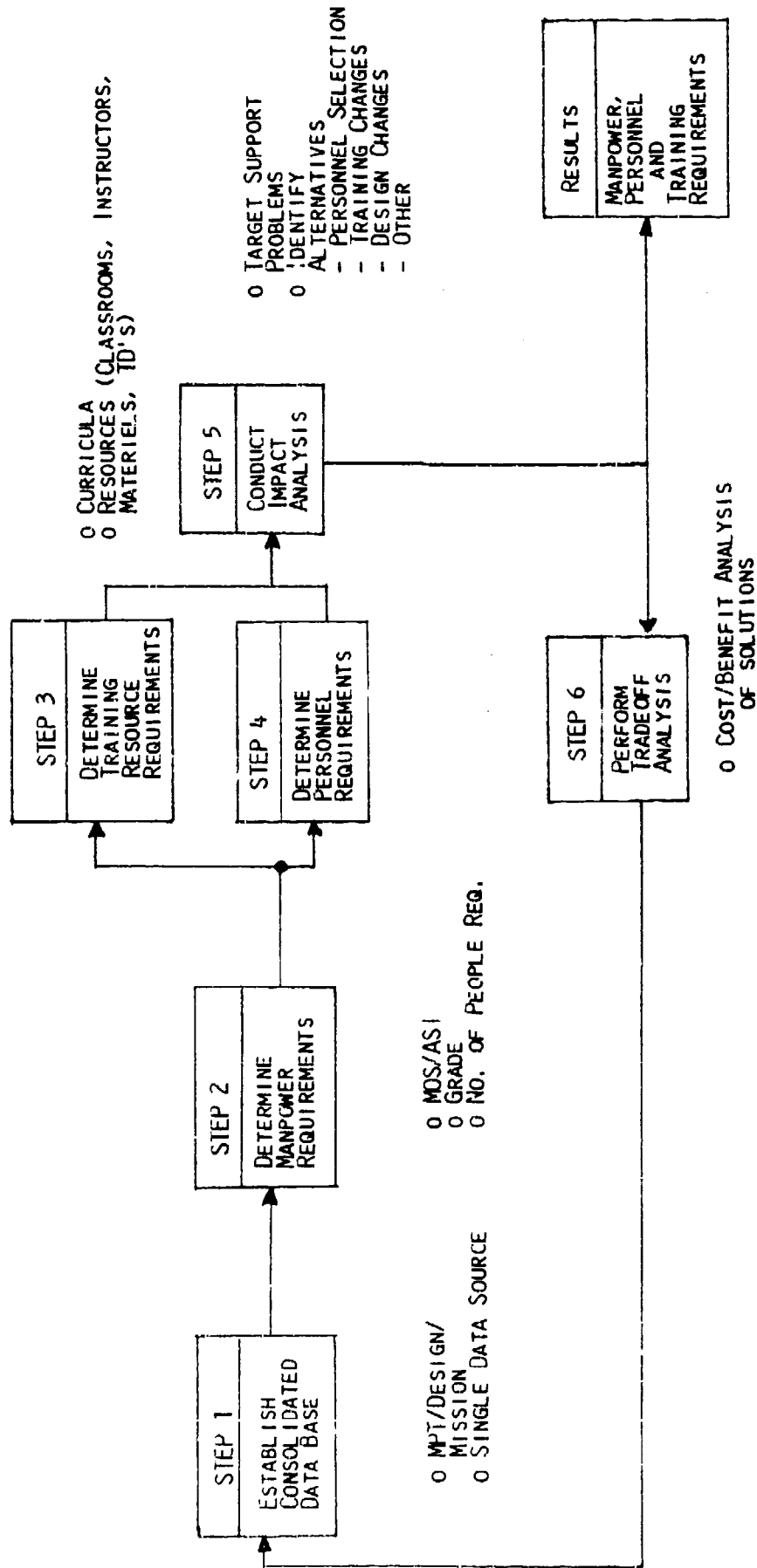
d. Human Factors Engineering Analysis (HFEA). An HFEA identifies MPT, HFE, system safety, and HHA issues, some of which may be of sufficient criticality to preclude proceeding into the next acquisition phase. It also identifies MANPRINT concerns which are resolvable and must be addressed in subsequent acquisition phases. HFEAs may be performed at the end of each acquisition phase. The chart on page 11.17 shows features of the HFEA.



EARLY COMPARABILITY ANALYSIS (ECA)

11.11

11.12



# FEATURES OF HFEA

## PURPOSE

A COMPREHENSIVE REVIEW OF THE STATUS OF MANPOWER, PERSONNEL, TRAINING, SYSTEM SAFETY, HEALTH HAZARD AND HUMAN FACTORS ENGINEERING IN A MATERIEL ACQUISITION PROGRAM IN SUPPORT OF THE ASARC/ IPR PROCESS, DIRECTED TOWARDS DETERMINING WHETHER THERE EXISTS ANY MANPRINT RELATED CONCERNS OR ISSUES IN THE SYSTEM SO SERIOUS THAT THE SCHEDULE OF PROJECT TRANSITION TO THE NEXT PHASE OF DEVELOPMENT SHOULD BE ALTERED.

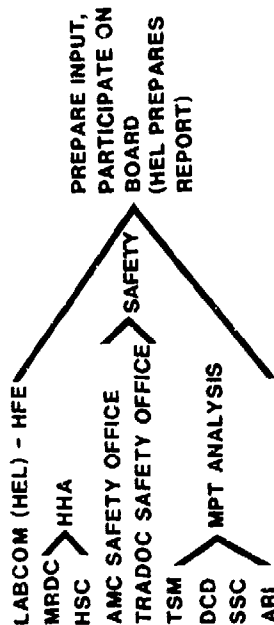
## HFEA ISSUE CATEGORIES

**CRITICAL:** HIGH LIKELIHOOD OF SERIOUS HEALTH HAZARD, SAFETY, HFE, MANPOWER, PERSONNEL OR TRAINING PROBLEMS.

**MAJOR:** MODERATE LIKELIHOOD...

**OTHER:** SYNERGISTIC EFFECTS COULD - UNDER CONTINUOUS OPERATIONS OR BATTLEFIELD STRESS - BECOME MAJOR OR CRITICAL

## HFEA BOARD PLAYERS



## POLICY

- HFEA REQUIRED ON ALL DOD MAJOR DESIGNATED ACQUISITION AND IPR PROGRAMS UNLESS WAIVED. WAIVER APPROVAL AUTHORITY PER 602-2:
  - HQDA - DOD MAJOR/DESIGNATED REQUISITION
  - HQAMC/HQTRADOC - IPR PROGRAMS
- REQUEST HFEA 5 MOS BEFORE ASARC REVIEW
- HEL PREPARES THE HFEA
- BOARD REVIEWS THE HFEA
- DIRECTOR HEL APPROVES FINAL HFEA AND DISTRIBUTION

## PROVIDED TO

PROGRAM MANAGERS  
WEAPON SYSTEM MANAGERS  
HFEA PARTICIPANTS (PER 602-2)

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## Process Outline

(1) The process begins when TRADOC or AMC (depending on the phase of development) requests the initial HFEA from HEL. HEL assigns an HFEA principal organization to prepare the HFEA. In most cases this principal is the HEL field element located at the TRADOC proponent school or AMC laboratory, research, and development center. HEL establishes data needs tailored to particular programs under consideration and requests the TRADOC proponent school/TRADOC System Management (TSM) or AMC PM/MATDEV to provide MPT data, system safety, and health hazard assessments. HEL holds an initial planning meeting with representatives of the various participating agencies to coordinate the execution of the HFEA. Upon receipt of the data and analyses, HEL combines the input with the HFE portion of the analysis and prepares a draft HFEA as prescribed in HEL Memorandum 70-9.

(2) An HFEA Review Board, composed of representatives from all HFEA participating activities, convenes to review and modify the draft HFEA, as appropriate. HEL prepares the revised draft HFEA, based upon review board comments, and sends copies to the TRADOC proponent school/TSM and the AMC MATDEV/PM for comment. After comments are received and incorporated, the Director, HEL, approves the HFEA, and it is distributed to the HFEA initiator, proponent, and the HFEA participating activities. The SAR will be developed for all systems.

e. Safety Assessment. SSRA and SHDS are prepared for all MADP reviews. They document the hazards existing in the systems 60 days prior to the reviews, summarize the results of the system hazard analysis, provide the status on system hazard reclassification and Nuclear Regulatory Commission (NRC) license and DA permits, where applicable and provide the position of the local safety office, CBTDEV, PM, and acquisition manager relative to acceptance of the existing hazards. Safety assessments are conducted to assure hazards are identified and the risks associated with these hazards are properly managed through SARs, Safety Releases, and Safety Confirmations. SARs are formal summaries of all safety data collected on the test item and must be provided to the tester by the MATDEV 60 days prior to test initiation. The Safety Release is a formal document issued to a user test agency or board prior to any test involving troops. The Safety Confirmation, a formal letter or a part of the independent evaluation report (IER), provides the MATDEV with the DT or OT agency findings and conclusions and states whether the specified safety requirements are met. (See AR 385-16 for further details.)

11.15

f. Health Hazard Assessment Report (HHAR). These reports are requested by the CBTDEV/MATDEV, testers, and evaluators as appropriate to be performed by the Army Medical Department (AMEDD) as a tasker from The Surgeon General. The HHAR provides an analysis and assessment of health hazard issues. It recommends actions to be resolved by reducing, controlling, and/or eliminating actual and potential health hazards. (See AR 40-10 for details.)

11.16



### System MANPRINT Management Plan (SMMP) Format

1. Summary. Provide an overview of the MANPRINT strategy to be employed and the highlights of the SMMP. This will assist high level decisionmakers in their review of the SMMP.

2. Description.

a. Description of the Proposed Materiel System. Provide an overview including, but not limited to, the materiel deficiency being addressed, missions, operational environments, design versions or alternatives, and essential total system (Man in the Loop) performance characteristics.

b. Acquisition Strategy. Briefly discuss the Life Cycle System Management Model (LCSMM) strategy to be employed.

c. Agencies. List the lead agency and all agencies expected to be involved in supporting the system acquisition (other proponents, MATDEVs, TSMs, etc.).

d. Guidance.

(1) Decisions. List all decisions which have been made that will have a direct impact on the design and/or MANPRINT issues.

(2) General DA and TRADOC Guidance. List all available guidance provided for MANPRINT issues. (Example: A currently short MOS may be planned for employment of an emerging system because DA plans to increase the recruiting for the MOS.)

(3) Assumptions. Identify all assumptions being made which are not directly reflected in the decision or guidance paragraphs. (Example: The average soldier operating the present system is mental category IIIB; therefore, the average soldier operating the emerging system will also be mental category IIIB.)

3. MANPRINT Strategy.

a. Objectives. List the MANPRINT goals to be achieved during the acquisition process.

b. Data Sources/Availability.

(1) Predecessor System. Determine the predecessor/reference systems and components, if any exist. Consider predecessors for each component of the materiel system, training devices, and repair and support equipment.

11.17

## SMMP Format

(2) Early Availability of Data/Risk Analysis. Discuss the types and importance of data to include when it is to be available for inclusion in analyses. Determine its impact on the MANPRINT strategy to be employed and the associated level of risk incurred. Provide the rationale and background employed in deciding how to address MANPRINT issues throughout the acquisition life cycle. (Example: If only a small amount of necessary data is available prior to MI, address the risk incurred in having to delay MANPRINT decisions and how the shortfall will be made up later. The impact on resources should also be addressed, in addition to the risk which the decision-makers must face.)

(3) Planned Level of MANPRINT Analysis Effort. Identify what and when analyses are to be conducted based on the availability of data and resources. Include how they will affect the risk incurred by the MANPRINT strategy employed.

## NOTE

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If the MJWG determines there is no need to maintain and update SMMP throughout the life cycle of the subject system, the rationale for this decision is documented here and the remaining sections are not completed.

4. Concerns. Discuss any issues/areas of concern that have arisen. These are issues to watch during the system's development and should cause the SMMP to be updated as answers are obtained. (Example: The system is progressing on the streamlined acquisition cycle and there is concern regarding time to establish test issues, time to conduct the test, and analyze the data.)

5. Tabs.

a. Tab A, Data Sources. List all potential data sources, the MANPRINT domains addressed (manpower, personnel, training, human factors engineering, system safety, and health hazards), and the data item's relative importance to the system's development. This will form the cornerstone for all analyses and planning.

## SMMP Format

b. Tab B, MANPRINT Milestone Schedule. Using a "Gantt Chart" style (a method of data display in the Program Evaluation Review Technique (PERT)), display all significant MANPRINT tasks to be accomplished from research exploratory development through first-unit-equipped. (Use of automation for this tab is encouraged. The CBTDEVs Concept and Studies Division should be able to assist.)

c. Tab C, Task Descriptions. For each task to be performed, list the following information (necessary for Tab B preparation):

Task Description (narrative).

Rationale (why is it necessary).

Resources (personnel and dollars).

Time to Complete (optimistic, normal, pessimistic).

Responsible Agency (lead agency).

Support Agencies.

Dependencies (tasks which must be completed prior to starting this one).

Feeds (tasks which cannot start until this one has been completed).

d. Tab D, Questions to be Resolved. List any questions that will influence the MANPRINT decisions/tradeoffs to be made. These are very detailed and specific in nature as opposed to the broad areas of concern contained in the basic document.

e. Tab E, Coordination. List all commands, agencies, and activities with whom the SMMP must be coordinated.

f. Tab F, Audit Trail. This tab documents all decisions made during the entire life of the system and provides a historical record. The events in this section will be documented in chronological order as they occur.

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## **Chapter 12**

# **INTEGRATED LOGISTIC SUPPORT (ILS)**

## Chapter Guide

This chapter outlines requirements and procedures used to plan, program, develop, acquire, test, and deploy, concurrent with fielding of a new/improved weapon system/item and all the necessary support resources to ensure the supportability and readiness of the system/item when fielded. The Integrated Logistic Support (ILS) process provides for all the support resources necessary to keep a system/item in an operational-ready status. In selecting the best support concept during the acquisition process, AMC and TRADOC consider numerous alternatives and tradeoffs. Logistic Support Analysis (LSA) provides a scientific and engineering method for defining support system requirements and acquiring necessary support. Both AMC and TRADOC perform LSA tasks (either in-house or through contractors) applicable to their respective mission responsibilities as defined in AR 700-127.

ILS is the unified and iterative approach to the management and technical activities needed to--

- a. Influence operational and materiel requirements and design specifications.
- b. Define the support requirements best related to system design and to each other.
- c. Develop and acquire the required support.
- d. Provide required operational phase support at lowest cost.
- e. Seek readiness and Life Cycle Cost (LCC) improvements in the materiel system and support systems during the operational life cycle.
- f. Repeatedly examine support requirements throughout the service life of the system.

12.1

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## Chapter Guide

The elements of ILS are--

- a. Design influence to include logistic-related reliability, availability, and maintainability (RAM).
- b. Maintenance planning.
- c. Manpower and personnel.
- d. Supply support.
- e. Support equipment and TMDE.
- f. Training and training devices.
- g. Technical data.
- h. Computer resources support.
- i. Packaging, handling, and storage.
- j. Transportation and transportability.
- k. Facilities.
- l. Standardization and interoperability.

The ILS process pursues two thrusts simultaneously. The first is design influence to reduce operating and support costs and simplify equipment operation and maintenance. The second is the design, development, test, and acquisition of support to assure satisfactory operation and readiness of the system/item in the field. The effectiveness of the first thrust reduces demands on the second.

12.3

Effective application of ILS requires close coordination of AMC and TRADOC activities and their tailored application and integration within the materiel acquisition process. To assist this integration, AMC and TRADOC correspondence originators will provide an information copy of ILS correspondence regarding specific program activity to the designated HQ AMC WSSM and HQ TRADOC System Staff Officer (TRASSO).

In an effort to operate within manpower, personnel, training, and other logistic constraints, the AMC and TRADOC ILS community will generate improvements in support and supportability-related system design through--

- a. Jointly developing early-on ILS program.
- b. Use of LSA and MAINPRINT techniques and performing an ILS study.
- c. Development and/or change of doctrine, policy, and procedure.



## Chapter Guide

d. Development of analytical techniques for deriving manpower, personnel, training, and logistics impacts from the MAA and other TRADOC scenario-based analyses.

e. Identification and pursuit of logistics R&D program initiatives to include the enhancement of hardware component/item supportability characteristics by the identification of required--

- (1) Science and Technology Objectives (STOs).
- (2) Independent Research and Development (IR&D).
- (3) AMC laboratory investigation (both in-house and under contract).

f. Identification of--

- (1) Contract incentives.
- (2) System Readiness Objectives (SROs).
- (3) Product improvement candidates.

g. Review of an input to the DA Long-Range RDA Plan, the AMC Technology Base Program, and AMC Mission Area Materiel Plans (MAMPs).

h. Emphasis on commercial, other Service, and other nation technical advances in supportability characteristics and techniques.

### Responsibilities

An ILS program is jointly established by AMC and TRADOC in coordination with the logistician, US Army Logistics Evaluation Agency (LEA). TRADOC is principally responsible for identifying and documenting general ILS requirements and constraints through studies and analysis (LSA) and LSA strategy (LSA task 101) during the Requirements/Technology Base Activities Phase. Generally, lead responsibility for ILS transfers to AMC upon entry into the Proof of Principle Phase. USALEA is the independent logistician and ILS evaluator for most new, product-improved, and displaced systems. For Class VIII, medical materiel, the logistician is the US Army Medical Materiel Agency.

### Chapter Proponent Offices

AMC: AMCSM-PL

TRADOC: ATCD-S

**12.5**

### References

The following documentation directly influences or affects the integrated logistics support process:

DOD: DODD 5000.39  
MIL-STD-1388-1A  
MIL-STD-1388-2A

## References

DOD: DODD 4245.7-M

DA: AR 34-2  
AR 70-44  
AR 70-47  
AR 71-2  
AR 71-9  
AR 310-3  
AR 350-35  
AR 415 series  
AR 700-XXX  
AR 700-18  
AR 700-120  
AR 700-127  
AR 700-129  
AR 702-3  
AR 750-1  
AR 750-4  
AR 750-43  
PAM 700-55  
PAM 700-XX  
PAM 700-127  
CIR 700-85-1  
CIR 700-85-2

AMC: AMC-P 700-4  
AMC-P 700-21  
AMC-P 700-11  
AMC-P 700-15  
DARCOM-R 700-34  
MRSA PAM 700-6

TRADOC: TRADOC-R 71-9  
TRADOC-R 351-9  
TRADOC-R 600-4  
TRADOC-R 700-1  
TRADOC CIR 70-1  
TRADOC CIR 350-30  
HQ TRADOC (ATCD-D) Letter of Instruction (LOI) 28  
Oct 83, subject: TRADOC Review of DARCOM Materiel  
Fielding Plans (MFP)

DSMC: Integrated Logistic Support Handbook (Draft 1985);  
Defense Systems Management College

Department of the Navy: NAVSO P-6071, Best Practices.

### References

Also see the following chapters in this handbook:

- Chapter 3 - Operational and Organizational Plan/  
Justification for Major System New Start
- 10 - Program Management Documents
- 9 - Concept Formulation Package and Cost and  
Operational Effectiveness Analysis
- 11 - Manpower and Personnel Integration
- 13 - Test and Evaluation
- 14 - Basis of Issue Plan and Qualitative and  
Quantitative Personnel Requirements Information
- 18 - Type Classification

### Time Constraints

Functional activities involved in completing ILS requirements are often severely time-constrained and must be compatible with the materiel system/item in schedules and milestones they are to support.

**12.7**

### Procedure

Detailed procedures for execution of the ILS process are described on the following pages in the form of short descriptive paragraphs on the left-hand page and corresponding flow charts on the facing page.

### NOTES

Because ILS is involved in the entire Army acquisition process from identification of the need through deployment, a slightly different format is used for the flow charts of this chapter.

The process outline discussed in this chapter will be portrayed against a representative example of an extensive development program as presented in chapter 1. Tailoring of ILS activities must be compatible with the tailoring of the materiel acquisition process, activity initiation dates, and the elapsed time allocated to development, production, and fielding.

## Process Outline

## Requirements/Technology Base Activities:

1. ILS issues, logistic deficiencies, and opportunities for improvement will be evaluated by TRADOC proponent during performance of MAA and by corresponding AMC MSCs during preparation of MAMPs.

a. Prior to program initiation, TRADOC will--

(1) Identify logistics, MANPRINT, and training issues/deficiencies. Develop SMMP and provide to AMC.

(2) Initiate, monitor, and/or support MANPRINT, training, and logistics improvement/doctrine studies.

(3) Utilizing results from studies, experience on similar systems, concept evaluation programs, and Force Development Testing and Experimentation (FDTE), identifying materiel, MANPRINT, training and logistics constraints, and improvement requirements to be applied in the materiel acquisition process.

(4) Use the task structure of LSA, MIL-STD-1388-1A, identifying the user's desired system support concept (maintenance, supply, transportation, etc.).

b. During this period, AMC will--

(i) Utilize its information base (e.g., ILS lessons learned, logistics experience reports, system assessments, etc.) to identify materiel; Manpower, Personnel, and Training (MPT); and logistics constraints and improvement opportunities.

(2) Examine ILS implications in technology base assessments and experimentation.

(3) Conduct ILS-related improvement studies (logistics R&D).

(4) Provide identified constraints and improvement opportunities to the TRADOC mission area/system proponent.

## Process Outline

2. The TRADOC proponent school initiates preparation of an O&O Plan (and JMSNS, if required (chapter 3)). The TRADOC ILS program planner and the AMC ILS representative, the trainer, logistician, and MANPRINT points of contact will ensure that ILS and MANPRINT considerations are included in appropriate Joint Working Group (JWG) analyses and decisions. Approval of the O&O Plan or JMSNS constitutes approval for program initiation.

3. Upon approval to initiate a materiel system program--

a. The TRADOC Mission Area/System Proponent will designate an individual to serve as the TRADOC ILS program planner and advise HQ AMC (AMCSM-W), the appropriate AMC materiel proponent, HQ TRADOC (DCSCD and DCST), U.S. Army Logistics Center (LOGC, ATCL-M), Combined Arms Center (CAC, ATZL-CAM), Soldier Support Center (SSC), ATSG-DDM, and SSC-National Capitol Region (NCR), ATZI-NMM, and the U.S. Army Logistics Evaluation Agency (USALEA, DALO-LEI).

b. The AMC materiel proponent will designate an individual to serve as the AMC ILS representative and advise HQ AMC (AMCSM-W), the TRADOC ILS program planner, and USALEA. The AMC ILS representative will provide ILS support and interface to the TRADOC ILS program planner.

## NOTE

To support the TRADOC proponents LSA effort, establish HQ LABCOM (AMSLC-TP-AL) as the AMC focal point to assist TRADOC prior to an approved O&O Plan.

c. The TRADOC ILS program planner, in conjunction with the AMC ILS representative and STF/SSG, if applicable, will establish an ILS Management Team (ILSMT) to orchestrate ILS activities. The STF/SSG, if applicable, will designate the ILSMT chairman. Normally, the TRADOC ILS program planner will chair the ILSMT; however, TRADOC and AMC may co-chair the ILSMT to facilitate communication and establish easier tasking authority in both commands.

12.9

## Process Outline

d. Where practical, the AMC and TRADOC individuals designated above will continue to serve in the key ILS roles for the respective command in subsequent phases of the materiel acquisition process.

## NOTE

ILS lead activity responsibility will generally transfer from TRADOC to AMC upon transition to the Proof of Principle Phase.

## 4. TRADOC exercises lead responsibility for--

12.10 a. LSA/Logistic Support Analysis Documentation. The TRADOC ILS program manager, in coordination with LABCOM, prepares the LSA strategy during the Requirements/Technology Base Activities Phase on the O&O Plan and Operational Mode Summary/Mission Profile (OMS/MP) data. The LSA strategy ensures that only LSA tasks tailored to the program needs are accomplished to support development of ILS element requirements and/or constraints and supportability design requirements. This information will be consistent with the ILS information contained in the JMSNS and O&O Plan. To establish the baseline LSA documentation, TRADOC prepares advanced development LSA Record (LSAR) data sheets (i.e., short form) described in MIL-STD 1388-2A, reflecting operational requirements and addressing each of the ILS elements. The data contained in the short form LSAR data sheets is used in the joint preparation of the LSAR "A" Sheet (i.e., TRADOC provides appropriate data elements with completion of the sheet made by AMC) and other LSA documentation as appropriate, as well as a reference document for solicitation and contractual documentation. Where appropriate, the LSAR "A" Sheet is included in solicitation and contractual documentation.

b. Preparation of a Concept Formulation Package (CFP). The TRADOC ILS program planner exercises overall lead agency responsibility for the ILS content of the CFP. The AMC ILS representative is responsible for the ILS content of the Trade-Off Determination (TOD). The TRADOC ILS program planner and AMC ILS representative are jointly responsible for the ILS portion of the Trade-Off Analysis (TOA) and Best Technical Approach (BTA).

## Process Outline

c. Preparation of Individual and Collective Training Plan (ICTP). The TRADOC ILS program planner ensures actions are initiated by the appropriate TRADOC activity/school to develop, coordinate, and distribute the ICTP. Through a coordinated effort, the TRADOC program planner and AMC ILS representative ensure that the schedules and milestones outlined in the ICTP for the training subsystem are integrated into other ILS plans and requirements. This is to include scheduling the availability of the hardware and other resources to satisfy the requirements of the ICTP.

d. Test and Evaluation Master Plan (TEMP). The TRADOC ILS program planner, in coordination with the AMC ILS representative, ensures that ILS test objectives, issues, and criteria are developed for inclusion in the TEMP and are adequately scoped and resourced. The TRADOC ILS program planner ensures a complete set of ILS issues and criteria are included in the TRADOC issues and criteria set submitted for inclusion in the TEMP. The TRADOC ILS program planner, in coordination with the AMC ILS representative, defines the degree of maturity required for the System Support Package (SSP) to be available for the technical tests (TT) and user tests (UT) scheduled in the TEMP. The TRADOC ILS program planner and the AMC ILS representative review the TEMP TT and UT concepts and planning information for adequacy to answer the assigned issues and criteria.

5. AMC exercises lead responsibility for--

a. Preparation of the Initial Integrated Logistic Support Plan (ILSP).

(1) In preparation for the Proof of Principle Phase (or subsequent phase for other ASs), the AMC ILS representative ensures that the initial ILSP is developed, coordinated with TRADOC, and approved. The AMC ILS representative ensures that the ILSP is used as the source document for ILS input into other program management documentation (e.g., TEMP, AP, etc.).

(2) The TRADOC ILS program planner assists the AMC ILS representative in developing the initial ILSP. Before approval, the initial ILSP is staffed and coordinated within TRADOC by the TRADOC ILS program planner. The AMC ILS representative ensures mutually satisfactory resolution of TRADOC ILS issues and concerns. Combat developer input to the ILSP is described in DA Pamphlet 700-55, Instructions for the ILSP.

12.11



## Process Outline

(3) The AMC ILS representative coordinates the ILSP with all other materiel acquisition program participants (e.g., HQDA staff, STF/SSG, USALEA, other AMC subordinate commands and agencies, etc.), and obtains ILSP approval by the AMC materiel proponent.

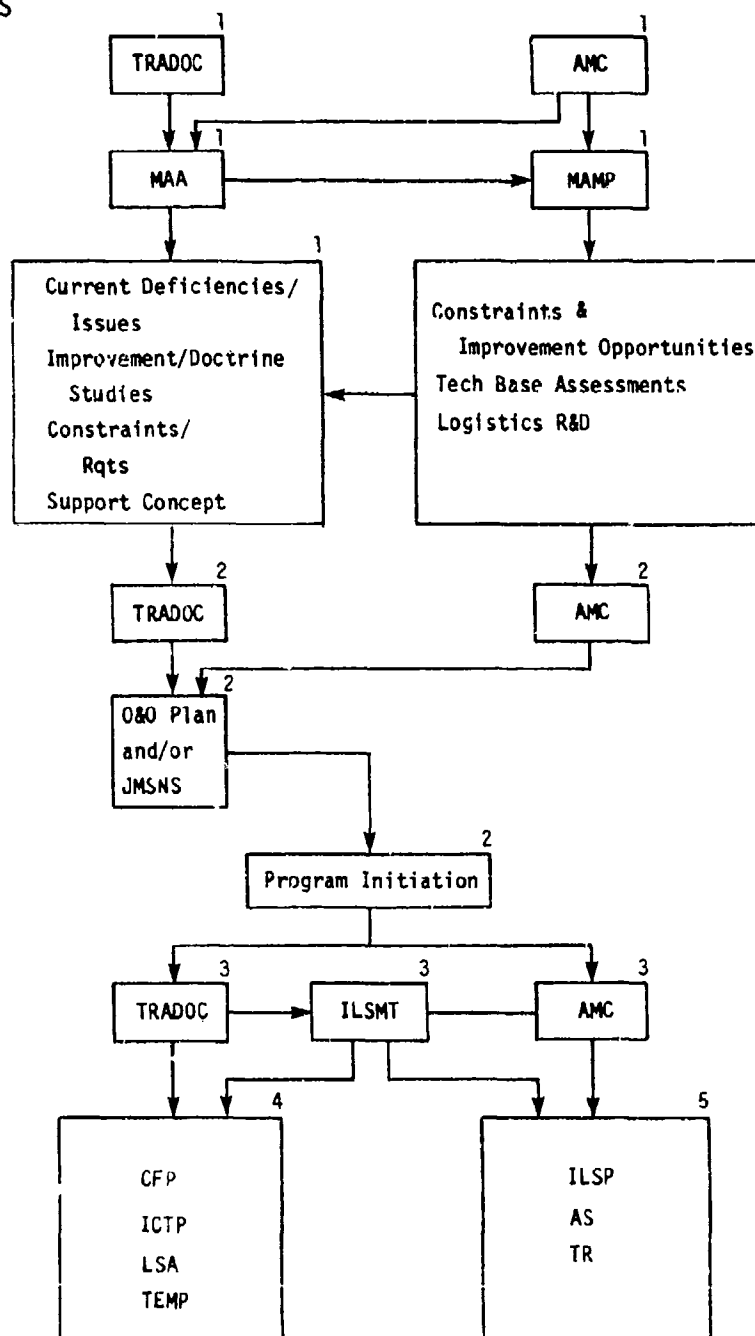
(4) For the balance of the acquisition program, AMC maintains currency of the ILSP and continued coordination with the TRADOC ILS program planner/point of contact.

b. Preparation of the AS. AMC ensures that ILS considerations are fully addressed in developing the AS. The AS precedes or is prepared concurrently with the ILSP. The ILSP must also be compatible with the tailoring of acquisition processes established in the AS. The approved ILSP and the ILS content of the approved AS reflect an interactive ILS planning effort. The AMC ILS representative coordinates the ILS input with the TRADOC ILS program planner, who provides assistance in developing alternate ILS strategies and impact assessments.

c. Preparation and analysis of a Transportability Report (TR). The AMC MSC submits a TR to the Military Traffic Management Command - Transportation Agency (MTMC-TEA) no later than 90 days prior to a decision review to enter the Proof of Principle Phase. The TR will describe the transportability characteristics of problem items designated by the MSC for development and evaluation during the Proof of Principle Phase. The Transportability Engineering Analysis (TEA) of the TR developed by MTMC-TEA must be available prior to the decision review.

## Process Outline

REQUIREMENTS/  
TECHNOLOGY BASE  
ACTIVITIES



12.13

## Process Outline

## Proof of Principle Phase:

1. The AMC materiel proponent designates an individual to serve as the ILS manager for each acquisition program and advises HQ AMC (AMCSM-W), appropriate subordinate commands, HQ TRADOC (DCSCD & DCST), and the TRADOC Mission Area/System Proponent (school or center). The AMC ILS manager will exercise the overall ILS management role for the materiel acquisition effort. The TRADOC Mission Area/System Proponent designates an ILS point of contact (POC), who will ensure that all ILS program actions are fully coordinated within the TRADOC community, advises the AMC ILS manager, and those other ILS participants cited in paragraph 3a of Requirements/Technology Base Activities. The ILSMT previously established by TRADOC will continue to function. However, since AMC now has lead responsibility for the program, the AMC ILS manager will now chair the ILSMT. The TRADOC ILS POC ensures that required TRADOC participants are advised and attend ILSMT meetings, as necessary. The ILSMT is the vehicle for keeping AMC and TRADOC acquisitions participants abreast of all the ILS issues, actions, and milestones that affect the ILS program to include updates to the ILSP. When an LSA Review Team is established as a subset of the ILSMT, the AMC ILS manager extends membership to the TRADOC ILS POC. The TRADOC ILS POC accepts LSA Review Team membership and ensures that additional TRADOC participants attend LSA Review Team meetings, as necessary. Based on the results of the Proof of Principle Phase, the LSA Review Team ensures that the overall LSA process is tailored to the system, reflects the current design configuration, and identifies and optimizes those MPT and logistics requirements necessary to support the deployed materiel system.

## 2. In relation to solicitation documents and contracts--

a. The AMC ILS manager ensures a copy of the data call (a request to Government acquisition participants asking for submission of their requirements for contractor-prepared data products) is forwarded to the TRADOC ILS POC. The TRADOC ILS POC ensures that ILS inputs are provided to the TRADOC system proponent for submission to AMC.

12.14

## Process Outline

b. AMC materiel proponents coordinate the Statement of Work (SOW) for materiel acquisitions as requested by TRADOC system proponents. The AMC ILS manager ensures that requested ILS technical support is provided for the TRADOC review. The TRADOC ILS POC ensures that ILS input/comments are provided to the TRADOC system proponent for submission to AMC.

c. AMC materiel proponents establish formal coordination procedures with TRADOC proponent school/centers. In development of these procedures, TRADOC proponent schools/centers identify SOW selection procedures. TRADOC reviews the SOW package on a priority basis and responds within 10 working days, so as to prevent adverse impact on procurement administrative lead times. If TRADOC comments are not received in the allotted timeframe, the solicitation will move forward without delay.

d. AMC, in finalizing the solicitation package, gives TRADOC comments careful and full consideration and seeks to resolve all issues. However, ultimate responsibility for the solicitation package rests with AMC.

e. The AMC ILS manager will be a member of the Source Selection Evaluation Board and the contracting officer's negotiation team and will provide technical representation on all matters pertaining to ILS.

f. All proposed contract changes which could impact TRADOC requirements, concepts, or ILS objectives will be coordinated with the TRADOC ILS POC prior to adoption.

3. The AMC ILS Manager, in coordination with the TRADOC ILS POC and with assistance as required provided by the ILSMT, updates the ILSP to guide Proof of Principle Phase activities as well as the remaining acquisition phases.

4. The AMC materiel proponent takes action, supported as required by the AMC ILS manager and the TRADOC ILS POC, in the following areas:

a. AS Update. As stated previously (paragraph 5b of Requirements/Technology Base Activities), the AS and ILSP are updated concurrently and provide source information for each other.

12.15

## Process Outline

b. ILS Test and Evaluation Actions TEMP Outline Test Plan (OTP), Independent Evaluation Plan (IEP), etc. AMC ILS manager and TRADOC ILS POC jointly ensure that--

(1) ILS test objectives, issues, and criteria are developed and incorporated into test plans and planning, conduct of tests, and test evaluation reports. This will include the requirement for the Logistic Demonstration (LD).

(2) Test Integration Working Group (TIWs) include ILS representation from AMC and TRADOC.

(3) The AMC SSP and New Equipment Training Package are complete and delivered within established milestones to support technical and operational tests.

(4) TRADOC Doctrine and Organizational Test Support Package (logistics concept and organizational elements) and Training Support Package are complete and delivered within established milestones to support operational tests.

12.16

c. ILS Funding. The AMC ILS manager will--

(1) Plan, program, and identify budget requirements for the ILS effort. Close coordination is maintained between the AMC ILS manager and the TRADOC ILS POC to ensure ILS requirements are adequately funded.

(2) Identify ILS funding shortfalls, propose remedial action, and coordinate with TRADOC. The AMC ILS manager and TRADOC ILS POC mutually agree to the impact and appropriate action to resolve the funding issues.

## Process Outline

## NOTE

ILS funding depends on the life-cycle status of the end item in question. All ILS planning, including purchase of ILS-related data from commercial sources, prior to TC-STD or formal adoption of an end item is financed with RDTE. Maintenance and update of ILS documentation for investment items currently in production is financed with procurement appropriations. Such effort diverted to items out of production is financed with OMA funds. Specific guidance is contained in AMC Supplement 1 to AR 37-100-FY.

12.17

d. LSA/Logistic Support Analysis Documentation. Based on the results of the Proof of Principle Phase, AMC with assistance from TRADOC updates earlier LSAR data sheets. AMC incorporates these changes into the LSAR "A" Sheet and the overall LSA process. The LSA process is utilized to document MPT and logistics requirements.

e. New Equipment Training (NET) Plan. The AMC ILS manager will ensure actions are taken by the AMC NET manager to coordinate development of the new equipment training plan (NETP) with the TRADOC trainer and ILS POC and to provide a copy of the approved plan to the TRADOC ILS POC for inclusion in the ICTP.

f. Transportability Report. An updated TR, an additional TEA, and a transportability approval (by MTMC-TEA) are required prior to the Milestone I/II Decision Review. Refer to paragraph 5c of Requirements/Technology Base Activities.

## Process Outline

5. The TRADOC system proponent takes action, supported as required by AMC and the AMC ILS Manager, in the following areas:

a. Required Operational Capability (ROC)/Training Device Requirements (TDR) (refer to chapters 4 and 5). TRADOC ILS POC ensures ILS considerations are specifically addressed in appropriate sections of the ROC/TDR. The TRADOC ILS POC and AMC ILS manager maintain continuous dialogue during ROC/TDR staffing and approval. The TRADOC ILS POC ensures mutually satisfactory resolution of AMC ILS comments.

b. Basis of Issue Plan (BOIP)/QQPRI (refer to chapter 14). The AMC ILS manager ensures that initial and subsequent QQPRI and BOIP Feeder Data are generated and provided to the Equipment Authorization Review Activity (EARA) for subsequent processing to TRADOC in the required timeframe. In preparing the initial QQPRI, AMC utilizes the ICTP as well as LSA and MANPRINT data for baseline information and constraints. The TRADOC ILS POC ensures the QQPRI and BOIP are processed in the required timeframe. For accelerated acquisition programs, AMC and TRADOC ensure concurrent acceleration of the BOIP/QQPRI process.

c. Required Military Support Posture. Prior to Milestone I/II, the TRADOC ILS POC establishes the acceptable military support posture for initial deployment. This capability establishes the baseline for possible use of interim contractor support and assists AMC in establishing mandatory milestone events during the acquisition process. The AMC ILS manager ensures that the updated ILSP reflects the minimum required military support posture.

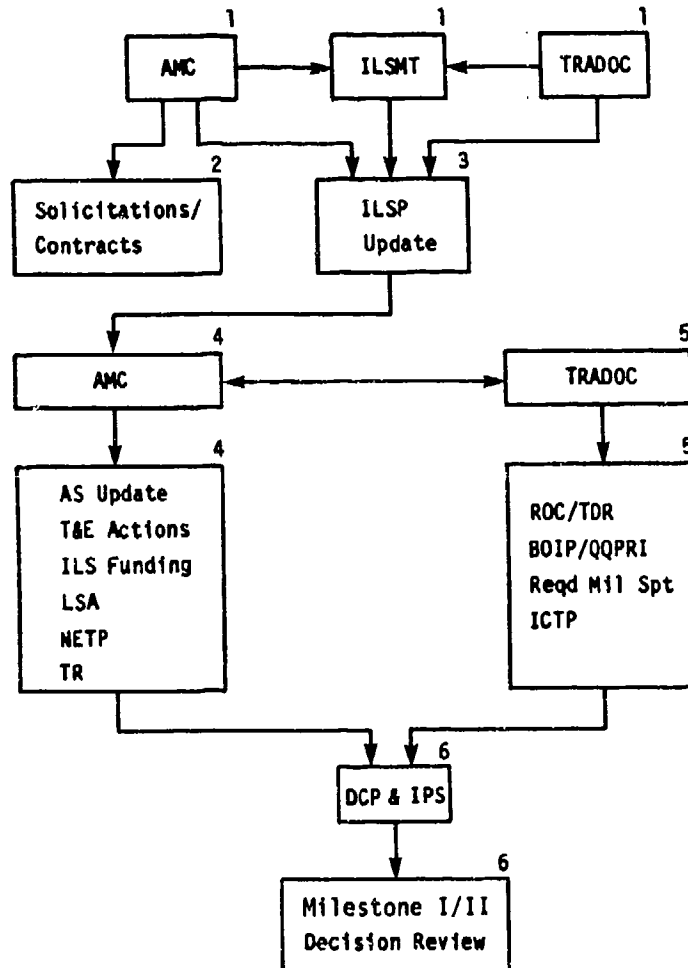
d. Individual and Collective Training Plan (ICTP). The TRADOC ILS POC ensures that the appropriate TRADOC activity/school develops, coordinates, and distributes the ICTP prior to Milestone I/II.

6. In preparation for the Milestone I/II decision, AMC prepares a DCP and, if required by the decision authority, an Integrated Program Summary (IPS). As part of the milestone review and decision, ILS considerations addressed are— identification of support costs and risks; update of life-cycle support concept (including the need for interim or full contractor logistic support); and resolution of previously identified supportability problems/issues for each element of support.

12.18

## Process Outline

PROOF OF  
PRINCIPLE  
PHASE



12.19



## Process Outline

## DEVELOPMENT PROVEOUT PHASE:

1. The ILS efforts during the Development Proveout Phase, while primarily the responsibility of the AMC ILS manager, continue to be characterized by coordination and cooperation between AMC and TRADOC ILS organizational elements, including use of the ILSMT, when appropriate. The ILSP (updated) is the tool for management planning and coordination in this phase.

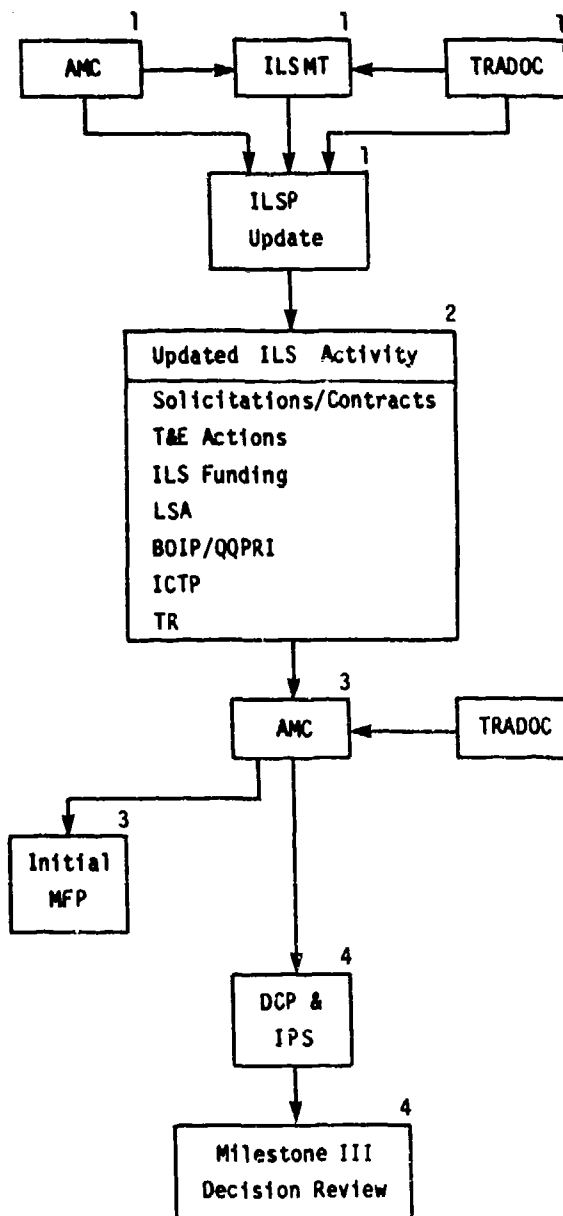
2. ILS-related documents and activities (solicitations/contracts, T&E actions, ILS funding, BOIP/QQPRI, ICTP, TR) in the Proof of Principle Phase are updated and expanded as appropriate. The AMC ILS manager employs LSA and LSA documentation to fully define the ILS elements required to support system deployment. A reaffirmed Transportation Approval from MTMC-TEA, in response to the AMC proponent's TR, is required prior to the Milestone III decision.

3. The AMC ILS manager ensures preparation and distribution of the initial Materiel Fielding Plan (MFP) 2 years prior to the first-unit-equipped (FUE) date. TRADOC input to preparation of the initial MFP is provided by the TRADOC ILS POC in the time-frame established by the AMC ILS manager. All draft MFPs will be coordinated within TRADOC in accordance with HQ TRADOC (ATCD-D) Letter of Instruction (LOI), 28 Oct 83, subject: TRADOC Review of DARCOM MFP. Refer to paragraph 3 of Production and Deployment Phase for a description of the Total Package/Unit Materiel Fielding (TP/UMP) process.

4. The Milestone III decision authority reviews ILS as part of the DCP and/or IPS.

## Process Outline

DEVELOPMENT  
PROVE OUT  
PHASE



12.21

## Process Outline

## PRODUCTION AND DEPLOYMENT PHASE:

1. Management actions during the Production and Deployment Phase require AMC coordination with the gaining commands as well as with TRADOC. The ILSMT or other combined planning group may be initialized to facilitate integrated planning and coordination by all participants.

2. The AMC ILS manager, in coordination with the TRADOC ILS POC, ensures that solicitations and contract documents contain provisions for all ILS elements, including interim contractor support, if selected, required to support initial and continuing deployment of materiel systems.

3. AMC is currently fielding selected systems and will field all systems in FY 87 and beyond under the TP/UMF concept. (Refer to DA CIR 700-85-2, AR 700-XXX, and MRSA PAM 700-6. See DA Circular 700-85-2 for exemptions to TP/UMF). Under this concept, AMC identifies, assembles, funds, and deprocesses--

a. The end item/weapon system including all component major items and basic issue items.

b. Associated Support Items of Equipment.

c. Organizational support equipment.

d. Authorized Stockage List (ASL)/Prescribed Load List (PLL) items.

e. Special tools and test equipment.

f. TMDE.

g. Special mission kits or equipment.

h. Technical publications.

i. Communications Security Equipment.

j. Deployable Common Table of Allowance (CTA) materials.

12.22

## Process Outline

Successful implementation of TP/UMF requires that--

a. Each gaining command define how it will support the system (Mission Support Plan).

b. The fielding command (AMC MSC) identifies the materiel requirements to each specific gaining unit (Materiel Requirements List).

c. The fielding and gaining commands coordinate directly to determine the required contents of the total package.

4. The AMC ILS manager is an active participant in the materiel release process (refer to chapter 1, pages 1.33 - 1.34). The AMC ILS manager obtains a TRADOC training assessment from the TRADOC ILS POC prior to the meeting of the MSC/PM Materiel Release Review Board (MRRB). The TRADOC assessment of training support capability of the system will be a major factor in determining the readiness of the system for fielding release. The assessment will at a minimum include an examination of the TRADOC ability to support the system with--

- a. Resident/nonresident training instruction.
- b. Extension training materials.
- c. Field Manuals.
- d. The Army Training and Evaluation Program (ARTEP).
- e. Training devices.
- f. Adequate technical publications.
- g. Adequate training base equipment.

The TRADOC ILS POC coordinates with the proponent school and logistics-oriented school (if different) efforts within TRADOC to formulate the institutional training assessment.

12.23

### Process Outline

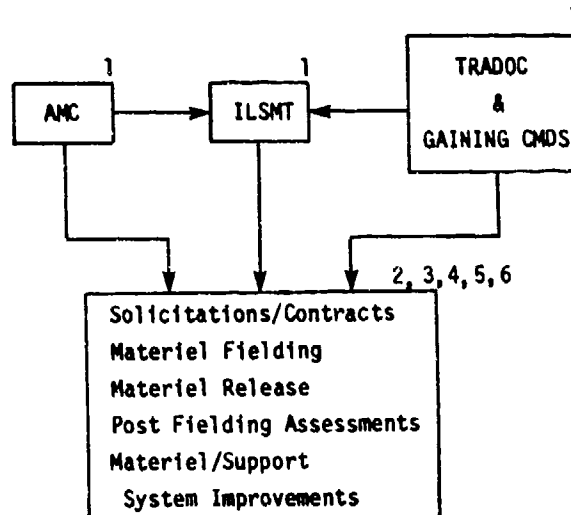
The TRADOC ILS POC provides the AMC ILS manager any additional comments pertinent to overall system supportability for consideration by the MRRB.

5. The AMC materiel proponent solicits TRADOC input and participation in the planning and conduct of post-fielding ILS assessments.

6. Subsequent to fielding, AMC and TRADOC develop data sources and analysis techniques to identify and prioritize improvements needed to enhance materiel and support systems.

## Process Outline

### PRODUCTION-DEPLOYMENT PHASE



12.25

# INTEGRATED LOGISTIC SUPPORT ILS FUNCTIONAL RESPONSIBILITY IN MATERIEL ACQUISITION

FUNCTIONS	RESPONSIBLE AGENCY	
	TRADOC	AMC
POLICY		
AR 700-127. . . . .	SUPPORT	SUPPORT
AMC-R 700-15. . . . .	-	LEAD
TRADOC-R 700-1. . . . .	LEAD	-
REVIEWS/ASSESSMENTS		
HQDA ILS REVIEW . . . . .	SUPPORT	SUPPORT
COMMAND REVIEW. . . . .	SUPPORT	LEAD
LOGISTICS STATUS REVIEW . . . . .	SUPPORT	LEAD
TRADOC MATERIEL EVALUATION COMMITTEE . . . . .	LEAD	SUPPORT
POST-FIELDING ILS ASSESSMENT . . . . .	SUPPORT	LEAD
FORMAL ILS TRAINING . . . . .	SUPPORT	LEAD
SYSTEM-RELATED ILS FUNCTIONS		
ILS MGT TASKS - RQMTS/TECH BASE ACTIVITIES . . . . .	LEAD	SUPPORT
- PROOF OF PRINCIPLE PHASE, AND BEYOND . . . . .	SUPPORT	LEAD
ILS PLAN . . . . .	SUPPORT	LEAD
SOLICITATIONS . . . . .	SUPPORT	LEAD
AMMS . . . . .	SUPPORT	LEAD
ILS MANAGEMENT TEAM . . . . .	SUPPORT	LEAD
OPERATIONAL AND ORGANIZATIONAL PLAN . . . . .	LEAD	SUPPORT
CONCEPT FORMULATION PACKAGE . . . . .	LEAD	SUPPORT
MATERIEL FIELDING . . . . .	SUPPORT	LEAD
ILS TECHNICAL TASKS		
LSA/LSA DOCUMENTATION - RQMTS/TECH BASE ACTIVITIES . . . . .	LEAD	SUPPORT
- PROOF OF PRINCIPLE PHASE AND BEYOND . . . . .	SUPPORT	LEAD
ILS FUNDING . . . . .	SUPPORT	LEAD
OT SUPPORTABILITY TEST AND EVALUATION . . . . .	LEAD	SUPPORT
TT SUPPORTABILITY TEST AND EVALUATION. . . . .	SUPPORT	LEAD
SYSTEM SUPPORT PACKAGE - TT/OT . . . . .	SUPPORT	LEAD
DESIGN INFLUENCE . . . . .	SUPPORT	LEAD
REQUIREMENTS DOCUMENTS . . . . .	LEAD	SUPPORT
CONSTRAINTS IDENTIFICATION. . . . .	LEAD	SUPPORT
SYSTEM SPECIFICATION. . . . .	SUPPORT	LEAD
SYSTEM ENGINEERING . . . . .	SUPPORT	LEAD
FUNCTIONAL PROCESSES REQUIRING INTEGRATION . . . . .	SUPPORT	LEAD
MAINTENANCE PLANNING . . . . .	SUPPORT	LEAD
MAINTENANCE CONCEPT . . . . .	LEAD	SUPPORT
MAINTENANCE PLAN . . . . .	SUPPORT	LEAD
SUPPLY SUPPORT . . . . .	SUPPORT	LEAD
SUPPLY CONCEPT . . . . .	LEAD	SUPPORT
PROVISIONING . . . . .	SUPPORT	LEAD
TRANSPORTATION & TRANSPORTABILITY . . . . .	SUPPORT	LEAD
REQUIREMENTS . . . . .	LEAD	SUPPORT

INTEGRATED LOGISTIC SUPPORT  
JLS FUNCTIONAL RESPONSIBILITY IN MATERIEL ACQUISITION

12

FUNCTIONS	RESPONSIBLE TRADOC	AGENCY AMC
ANALYSIS. . . . .	SUPPORT	LEAD
PACKAGING, HANDLING, AND STORAGE . . . . .	SUPPORT	LEAD
COMPUTER RESOURCES SUPPORT . . . . .	SUPPORT	LEAD
SUPPORT EQUIPMENT AND TMDE . . . . .	SUPPORT	LEAD
TECHNICAL DATA . . . . .	SUPPORT	LEAD
TRAINING AND TRAINING DEVICES . . . . .	LEAD	SUPPORT
NEW EQUIPMENT TRAINING . . . . .	SUPPORT	LEAD
INDIVIDUAL AND COLLECTIVE TRAINING PLAN . . . . .	LEAD	SUPPORT
INSTITUTIONAL TRAINING . . . . .	LEAD	SUPPORT
TRAINING DEVICES . . . . .	SUPPORT	LEAD
REQUIREMENTS . . . . .	LEAD	SUPPORT
ACQUISITION . . . . .	SUPPORT	LEAD
MANPOWER AND PERSONNEL . . . . .	LEAD	SUPPORT
QQPRI . . . . .	LEAD	SUPPORT
DEVELOPMENT . . . . .	SUPPORT	LEAD
UTILIZATION . . . . .	LEAD	SUPPORT
MOS DECISION . . . . .	LEAD	SUPPORT
BASIS OF ISSUE PLAN . . . . .	LEAD	SUPPORT
EQUIPMENT DISTRIBUTION & PERSONNEL . . . . .	LEAD	SUPPORT
BOIF FEEDER DATA . . . . .	SUPPORT	LEAD
PUBLISH TOE . . . . .	LEAD	SUPPORT
FACILITIES . . . . .	SUPPORT	LEAD
DEPOT . . . . .	-	SUPPORT
TRAINING . . . . .	LEAD	SUPPORT
STANDARDIZATION & INTEROPERABILITY . . . . .	SUPPORT	LEAD

12.27



The requirements for LSA to subtask level is determined before entry into each acquisition program phase. LSA task and subtask assignments are documented in the LSA strategy document which is summarized in the ILSP. The "requiring authority" is either TRADOC, the combat developer, or AMC, the materiel developer. The requiring authority may make arrangements (contracts, agreements, etc.) with a performing authority for actual task accomplishment. Appendix E of AR 700-127 assigns requiring authority responsibilities for ensuring that the LSA tasks/subtasks are accomplished. Proponent for the LSA program will plan for LSA task execution per an appropriately coordinated LSA plan. It is emphasized that LSA task accomplishment is a cooperative effort between the combat developer and materiel developer and a comprehensive approach to the total LSA requirements is necessary regardless of the performing activities. Specific LSA subtasks where this cooperation is paramount have been footnoted. For all programs managed by an STF in the concept phase, the STF director is responsible for LSA task accomplishment rather than the combat developer organization.

12.28

# INTEGRATED LOGISTIC SUPPORT (ILS)

## Requiring Authority by Phase

Task No.	Task Title	Sub-task	Pre-program initiation	Rqmts/Tech Base Act DOD Concept Expl	Proof of Principles DOD D & V	Development Proveout DOD FSD	PROD & DEPL
101.	Development of an early logistic support analysis strategy	101.2.1 101.2.2	CD*	CD 1 CD	MD 1** MD 1	MD 1	MD 1
102.	Logistic support analysis plan	102.2.1 102.2.2		CD CD	MD MD	MD	MD
103.	Program and design review	103.2.1 103.2.2 103.2.3 103.2.4			MD MD MD MD	MD MD MD MD	MD MD MD MD
201.	Use study	201.2.1 201.2.2 201.2.3 201.2.4	CD CD CD CD 1		CD 3, 4	MD	
202.	Mission hardware, software, and support system standardization	202.2.1 202.2.2 202.2.3 202.2.4	CD 2  CD 2	CD 3  CD 3	MD 6 MD MD MD	MD MD MD MD	MD MD MD MD
203.	Comparative analysis	203.2.1 203.2.2 203.2.3 203.2.4 203.2.5 203.2.6 203.2.7 203.2.8	CD CD CD CD CD CD CD		MD MD MD MD MD MD MD		

12.29

## INTEGRATED LOGISTIC SUPPORT

Task No.	Task Title	Sub-task	Pre-program initiation	Rqmts/Tech Base Act	Proof of Principles	Development proveout	PROD & DEPL
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Task No.	Task Title	Sub-task	Pre-program initiation	Rqmts/Tech Base Act DOD Concept Expl.	Proof of Principles DOD D&V	Development Proveout DOD FSD	PROD & DEPL
204.	Technological opportunities	204.2.1 204.2.2 204.2.3		CD 6 CD 6 CD 6	MD MD	MD MD	
205.	Supportability-related design factors	205.2.1 205.2.2 205.2.3 205.2.4 205.2.5	CD 2, 6, 7 CD 2, 7	CD 3, 6 CD 3, 6 CD 3, 6 CD 3 CD	MD 5 MD MD 5 MD MD	MD 5 MD MD 5 MD MD	MD 5 MD 5
301.	Functional requirements identification	301.2.1 301.2.2 301.2.3 301.2.4 301.2.5 301.2.6		MD MD MD	MD MD MD	MD	MD
302.	Support system alternatives	302.2.1 302.2.2 302.2.2 302.2.4 302.2.5		MD MD MD MD MD	MD	MD	MD
303.	Evaluation of alternatives and tradeoff analysis	303.2.1 303.2.2 303.2.3 303.2.4 303.2.5 303.2.6 303.2.7 303.2.8 303.2.9 303.2.10 303.2.11 303.2.12		CD CD CD CD CD CD CD CD CD CD CD CD	MD MD MD MD MD MD MD MD MD MD MD MD	MD MD MD MD MD MD MD MD MD MD MD MD	MD MD MD

# INTEGRATED LOGISTIC SUPPORT (ILS)

Task No.	Task Title	Sub-task	Pre-program initiation	Rqmts/Tech Base Act DOD Concept Exp1	Proof of Principles DOD D&V	Development Proveout DOD FSD	PROD & DEPL
401.	Task analysis	401.2.1 401.2.2 401.2.3 401.2.4 401.2.5 401.2.6 401.2.7 401.2.8 401.2.9 401.2.10 401.2.11			MD MD MD MD MD MD MD MD MD MD MD	MD MD MD MD MD MD MD MD MD MD MD	MD MD MD MD MD MD MD MD MD MD MD
402.	Early fielding analysis	402.2.1 402.2.2 402.2.3 402.2.4 402.2.5				MD MD MD MD MD	MD MD MD MD MD
403.	Post-production support analysis						
501.	Support-ability test evaluation and verification	501.2.1 501.2.2 501.2.3 501.2.4 501.2.5		MD 8 MD 8	MD MD MD	MD MD MD MD	CD 8 CD 8 CD 8 MD MD

\* combat developer  
\*\* materiel developer

## Notes:

1. To be completed just prior to phase initiation.
2. Documented in O&O Plan.
3. Documented in ROC.
4. Documented in RAM Rationale Report.
5. Documented in system specification.
6. Requires major support by both combat developer/materiel developer.
7. Documented in JMSNS.
8. Materiel developer responsible for TT and QA issues in all phases; combat developer responsible for UT issues in all phases.

12.31



## **Chapter 13**

### **TEST AND EVALUATION**

### Chapter Guide

This chapter describes test and evaluation (T&E) procedures in terms of the Army Streamlined Acquisition Process (ASAP). Information comparing activities in the DOD and ASAP models is provided in chapter 1 and appendix j.

### Chapter Proponent Offices

AMC: AMCQA-ST

TRADOC: ATCD-TP

### References

DOD: DODD 5000.3-M-1

DA: AR 15-18  
AR 70-1  
AR 70-10  
AR 71-3  
AR 71-9  
AR 702-3  
AR 702-9  
PAM 70-21  
PAM 71-3

TRADOC: PAM 71-13  
PAM 71-15

**13.1**

### Objectives

T&E is conducted to assist the decisionmakers in reducing and assessing acquisition risks by:

- a. Verifying attainment of technical performance specifications, objectives, and supportability to include logistics supportability.
- b. Verifying materiel defect
- c. Assessing operational effectiveness, operational suitability, and readiness.
- d. Determining training requirements, compatibility, and interoperability among Army systems and with the North Atlantic Treaty Organization and other Services.

## Overview/Responsibilities

T&E are integral facets of the materiel acquisition process. T&E ultimately provides the data to answer the basic concerns of (1) will the systems perform like it's supposed to, (2) can the soldier use it, and (3) can we afford it?

Army policy calls for integrated testing where feasible and using all available data (e.g., contractor, other Services, and foreign) for evaluation. This policy is aimed directly at reducing testing by using all available data for planning and evaluation. The two basic categories of test occurring throughout the materiel acquisition process described in AR 70-10 are Technical Test (TT) and User Test (UT). TT determines the engineering, safety, and manufacturing aspects of the equipment. UT determines the troop acceptability aspects, operational effectiveness, and suitability in the tactical environment. The technical tester is TECOM; the technical independent evaluator (TIE) is either TECOM or AMSAA, as designated by HQ AMC. The operational tester and evaluator is either TRADOC or the Operational Test and Evaluation Agency (OTEA), designated by ODCSOPS. TRADOC also performs UT and experimentation.

## 13.2

The acquisition process initial actions occur when the user requirement begins formulation through the MAA/BDP process at TRADOC. The Mission Area Analysis Test Advisory Group (MAATAG) identifies and plans early TRADOC experimentation and test using standard and surrogate equipment. These experiments, coupled with the materiel developer (MATDEV) technology experimentation/demonstration, provide the necessary information for program formulation at the Technology Integration Steering Committee (TISC) I proceedings.

If the alternative of developing a weapon system to satisfy the user's deficiency is selected, TISC I triggers a system development program start. At this point, the acquisition team representatives meet and form the TRADOC chaired Special/Joint Working Group (SWG/JWG). The MATDEV assumes responsibility for materiel system in about 60 days from the first meeting of the SWG. TRADOC continues with the responsibility of doctrine, tactics, organization, training, logistics, etc.

Critical evaluation issues are prepared by the combat developer (CBTDEV) in coordination with the MATDEV, TIE, and operational independent evaluator through the SWG/JWG. These issues accompany the O&O Plan until it's approved. Critical issues will be updated and approved with ROC development. The CBTDEV and operational evaluator supporting issues are reviewed by the TMEC.



### Overview/Responsibilities

The TIE and developer's supporting issues are reviewed/approved by the AMC Materiel Acquisition Review Board (MARB). The format for submission of critical evaluation issues and criteria is as shown:

- a. ISSUE: Questions applicable to evaluating operational effectiveness and suitability of a system.
- b. SCOPE: Conditions applicable to the issue.
- c. CRITERIA: Quantitative measures of the system's operational effectiveness and suitability used to judge whether the system satisfies the issue.
- d. RATIONALE: Justification for the criteria.

It is the responsibility of the acquisition team to integrate/combine tests for the most efficient and cost-effective test program. This is done through the Test Integration Work Group (TIWG).

A TIWG is established by the MATDEV based upon the draft O&O Plan. The TIWG is composed of the MATDEV (chair), CBTDEV, technical tester, TIE, operational tester, operational independent evaluator, logistician, and trainer. Other representatives may be added, as necessary.

#### NOTE

Initially the TIWG membership is essentially the same as the SWG/JWG and are usually the same faces.

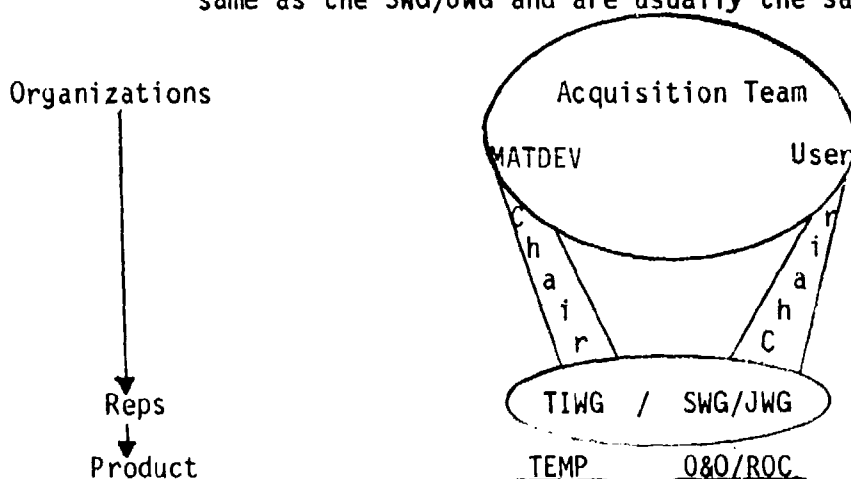


FIGURE I

### Overview/Responsibilities

The TIWG develops a Test and Evaluation Master Plan (TEMP) that covers all T&E through the production/deployment phase. In short, it provides a road map of T&E through the acquisition process for each system/item. Because of the update procedures, it is a "living" document. TEMP procedures and formats are contained in AR 70-1 and DA Pamphlet 70-21. By virtue of the TEMP format, the TIWG is forced to use a systematic approach that identifies what data is needed (Master Evaluation Plan (MEP)) to satisfy the issues before planning tests to produce data. Information contained in the TEMP will be used in structuring contractual documentation. The TEMP is submitted as a package with the AS for approval by the appropriate level MADP before entering Proof of Principle.

For the responsible MATDEV, the TEMP provides a documented log of plans, coordinations, and results. For all others, it provides a documented agreement of what is planned and has been accomplished.

Since the TEMP is a living document, an ingredient for feedback is necessary. This ingredient is the common T&E database. This mechanism will permit the acquisition team to "continuously evaluate/analyze functionally" system progress. Systematic review of the information in the common T&E database by the acquisition team exposes problems/issues for early solutions at the working level, and encourages efficient system development. Other considerations during test planning are: T&E Managers, Test Technology/Facilities, Test Funding, and Continuous Evaluation (CE).

### 13.4

#### Test and Evaluation Managers

Each AMC MSC has designated a test manager to manage the T&E functional area within the command. The test managers coordinate directly with HQ AMC, TECOM, and other test managers and assist test planners as a matrix function.

#### Test Technology/Facilities

With the advanced technology that is being applied to new weapon systems, the need for appropriate test technology to support testing of these systems is recognized. TECOM has established a central coordination office to ensure that all AMC/Army testers are aware of new test technology being developed/built. The central coordinator assists in eliminating duplicate development efforts and maximizing the use of existing test facilities by sharing information on test facilities. TECOM Technology Office - AMSTE-TC, APG, MD.

## Test Funding

MATDEVs are responsible for programing funds for all system test costs IAW AR 37-100, AR 70-10, AR 71-3, and AMC Supplement to AR 37-100. Users are responsible for programing funds for all innovative, CEP, FDTE, and OTs using a system IAW AR 71-3. NOTE: MATDEV funds materiel portion of OT.

## Continuous Evaluation (CE)

CE represents a thrust to assure the continuous flow of updated information regarding system status including planning, testing, data compilation, analysis, evaluation, and conclusions, and is available to all members of the acquisition team plus decisionmakers from the initial O&O Plan through deployment and assessment of field performance. CE is performed by each member of the acquisition team. A major objective is for the members to be active in surfacing critical problems at the earliest opportunity so that they may be addressed and resolved before they impact important decisions. This helps eliminate last minute surprises.

CE essentially ensures that:

- a. Testers and independent evaluators are exposed to the system early so that realistic T&E requirements may be planned and developed.
- b. Requirements and specifications that drive T&E considerations are made available to the testers and evaluators to stabilize the test program.
- c. Contractor and Government test data as well as data from other sources are made available to be used in the continuous evaluation process.
- d. Optimum testing is scheduled to preclude duplication in the interests of reducing testing for the overall test program.

The evaluators assess and evaluate the technical performance, operational effectiveness, and operational suitability of a system throughout the entire materiel life cycle. The results of each of these evaluations are provided by each evaluator to the Acquisition Executives. Within AMC, TECOM and AMSAA provide TIEs; the MATDEV (PM, Team Manager, et al.) provides a developer's evaluation. The operational independent evaluators are either OTEA or TRADOC. TECOM is the repository for all T&E data and the database is located in APG MD. The test community feeds the database with test data per the 1986 MOU between TRADOC, OTEA, and AMC.

13.5

### Time Constraints

Once a system has been identified to be developed, the acquisition team representatives are designated. The O&O Plan, AS, and TEMP are developed. Note the reliability plan must be developed before the TEMP can be finalized as a coordinated draft. Also, the TEMP must be approved by the appropriate level MADP before any testing occurs in the Proof of Principle Phase. The goal is to provide test results and evaluation analyses on production items for Milestone III. Approved test waivers are covered in AR 70-10.

### Process Outline

Detailed procedures for T&E are described on the following pages in the form of descriptive paragraphs keyed to corresponding actions on the charts. The format displays specific activities in each phase of the materiel life cycle conducted by the CBTDEV, MATDEV, evaluators, testers, and industry. It should be recognized that the charts depict the product (document, activity, etc.) under responsible activity. Activities are pictorially ordered to provide a general time sequence.

#### 13.6

1. MAA/BDP are the initial materiel acquisition process actions.
2. Technology experimentation/demonstration occurs during early technology feasibility research.
3. User Experimentation. TRADOC user testers perform user experimentation (CEP, FDTE, or innovative testing) as outlined by the MAATAG, CBTDEV, and training developer. These early and continual user test and experimentation efforts serve to-- solidify the materiel need and support O&O Plan preparation, support development of critical evaluation issues and criteria, and foster initiation of doctrine, tactics, organization, and training packages. Experimentation planning and reporting guidance is contained in AR 71-9.
4. MAATAG. The MAATAG functions as a subcommittee of the MAA. It identifies user experimentation requirements to support the MAA and operational requirements definition process. Also, the MAATAG defines the experiment issues and provides initial planning guidance.
5. MAMP. See chapter 2.
6. Safety Release. A safety release, if necessary, will be provided by TECOM as a customer service IAW AR 350-16.

## Process Outline

7. The Technology Integration Steering Committee (TISC) pairs technological opportunities with emerging requirements. It includes joint (MATDEV/CBTDEV) representation and meets semi-annually. TISC-I matches technological opportunities with Army thrusts and emerging mission needs. It triggers the preparation of an O&O Plan or JMSNS. It also directs technology maturation actions needed for subsequent steps. TISC findings support MAMP and LRRDAP prioritization of resources, as well as MATDEV/CBTDEV MARB deliberations/In-Process Reviews (IPRs).

8. The O&O Plan (or JMSNS, if required) is the program (system) initiation document and is approved before TISC II review.

9. Critical evaluation issues and criteria will be approved by the Materiel Acquisition Decision Process (MADP) Review and included in the TEMP. These issues lead to the test issues through the Independent Evaluation Plan (IEP) process.

10. The TIWG formulates the first broad scope TEMP which includes a reliability plan (AR 702-3). This group ensures the testing program outlined by the TEMP is coordinated in support of the AS. All testing will be identified in the TEMP, to include testing of product improvements. The TEMP is a "living" document. Between milestones, this coordinated TEMP is considered approved by TIWG consensus unless the MADP decision authority (who is notified in writing of changes) disapproves. Each TIWG representative is responsible for his command's concurrence. The overall TEMP requires concurrence prior to milestones by all TIWG membership. It is forwarded to the MADP review body for approval as part of the supporting documentation. Instructions for the TEMP and its preparation are in AR 70-10 and DA Pam 70-21.

11. CE starts after TISC I and continues throughout the process. The T&E database used for CE will be fed by the TIWG membership. The gradient on the chart indicates the initial data input to the database.

12. Experimentation Reports. These are the reports for all previous user and technical experimentation that will be encompassed in the formulation of the system. This data will be part of the initial TEMP data reviewed by the TISC.

13.7

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## Process Outline

13. Outline Test Plans (OTP)/Resume Sheets are prepared IAW TRADOC Pam 71-3.

## NOTE

The OTP is updated every 6 months for Test Schedule and Review Committee (TSARC) for FDTE resume sheets are for CEP and are approved by TRADOC with changes worked out between proponent and tester. The OTP is a resource document which usually is prepared for the TSARC (AR 15-38) by the operational tester. OTPs will be prepared by the MATDEV when additional testing resources (normally FORSCOM support) are required. It contains a listing of the necessary resources and administrative information required for support of a test. The OTP also contains the critical test issues, test conditions, and scope. Additionally, the OT OTP will address tactical context.

14. The TIE and operational independent evaluator each prepare an Independent Evaluation Report (IER) for all aspects of evaluation responsibilities relative to the system including market investigation. The IEP details the independent evaluator's actions for the evaluation of the system. It is periodically updated, at least annually, reflecting materiel and program changes. The operational independent evaluator has the responsibility for preparation of the Master Evaluation Plan (MEP). The MEP consolidates the technical and operational independent evaluation plans with the materiel developer's (MSC/PM) detailed plans for evaluation of the system. The evaluation plans take into account all available data to preclude unnecessary testing while assuring that evaluation objectives are achieved. The MEP will identify each issue for evaluation and the methodology to be used. The MEP will specify the procedures for exchange of evaluation information, if necessary. The MEP requires concurrence by member agencies of the TIWG. The MEP will be an annex to the TEMP. Instructions for its preparation are in DA Pam 70-21. The Test Design Plan (TDP) is a formal document which supports the TEMP and may be provided as an annex to the TEMP. TDPs are derived from the IEP and are prepared by the TIE and the operational tester. The TDP is responsive to the technical and operational issues developed by each evaluator. It includes a complete test design, description of required tests, the conditions under which the system is to be tested, a statement of test criteria, and measures and plans for data collection for the TDP.

## Process Outline

15. System Support Package (SSP). The list of items in the SSP (plus shortages) to test is developed by the MATDEV. SSP for each test is developed IAW DA Pam 71-3 and refined before each readiness review and test.

16. Test Support Package (TSP). TRADOC combat developers and training developers begin preparation of the following TSP in preparation for experimentation during the Proof of Principle Phase and OT during the Development Proveout Phase:

- a. Doctrinal and Organizational Test Support Package.
- b. Threat Support Package.
- c. Training Test Support Package.

These packages are refined as the program progresses IAW DA Pam 71-3.

17. TISC II reviews the "match" and maturity of TISC I solutions for suitability to advance to Proof of Principle. The MARB follows.

18. MARB. See MADP chapter 15.



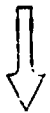
# TEST AND EVALUATION

13

## REQUIREMENTS AND TECHNOLOGY BASE ACTIVITIES

CBTDEV/ TRAINER	MATDEV	EVALUATORS	TESTERS	INDUSTRY
1 MAA/ BDP  4 MAATAG	2 TECH EXPERIMENT  5 MAMP		3 USER EXP ↓	
7 TISC I				
8 O&O PLAN  9 CRIT ISS. & CRIT.  16 TSP  8 O&O PLAN	10 TIWG/ TEMP  15 SSP	14 IEP TOP MEP	11 CONT EVAL  12 EXP REPS  13 OTP/ RS	
17 TISC II				
18 MARB				

TIME



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## Process Outline

19. A "Star Review" ("16 Star Review" for major programs) is held to establish top-down consensus on basic program direction at onset of the Proof of Principle Phase. The principles are determined by the level of the MADP decision authority (e.g., major programs - VCSA, USofA, AMCCG, and TRADOC CG). The review verifies and lends senior leadership impetus to the basic program parameters and course of action outlined for this acquisition phase. It reviews the TEMP, AS, and O&O Plan as a minimum.

20. Update TEMP.

21. Update IEP/TDP/MEP.

22. ROC is initiated IAW AR 71-9. Issues and criteria are updated, approved, and TEMP so updated. ROC is approved approximately 1 year before Milestone I/II.

23. Technical Test Readiness Review (TTRR) is chaired by the MATDEV with the principle TIWG members in attendance IAW DA Pam 70-21 (similar to Operational Test Readiness Review (OTRR)).

24. User Test Readiness Review (UTRR) conducted by the user tester for user experiments at system level. The UTRR is conducted in the same manner as the OTRR described in the next phase (#42).

25. Contractor begins fabrication of prototype/surrogate/brassboard hardware and conducts contract required tests.

26. T&E is conducted in this phase as integrated by the TIWG process in the TEMP document. It includes separate, combined, and concurrent user experimentation and technical testing. T&E conducted during this phase supports the hardware/software design through an approach which will be performed at the component, subsystem, and system level; identifies the preferred technical approach, including the identification of technical risks and feasible solutions; examines the operational aspects of the selected alternative technical approaches; estimates the potential operational effectiveness and suitability of candidate systems; supports the product improvement proposal (PIP) process; reduces design risks; establishes contractual compliance including component qualification; provides data for required readiness for test reviews; and evaluates technical and operational issues.

27. A Safety Release is processed IAW AR 385-16 in preparation for UT.

28. Test Incident Report (TIR) Summary. The TIR Summary is prepared by the MATDEV for the correct action review. All user and technical test TIRs are included.

## Process Outline

29. The Test Report (TR) is a formal document of record which reports the data and information obtained from the conduct of the test and describes the conditions which actually prevailed during test execution and data collection. Included in the TR is an audit trail of deviations from the TDP. TRs are prepared, approved, and published by the technical and operational testers.

30. A corrective action review process conducted by the MATDEV is in the formal process to assess and improve reliability, availability, and maintainability (RAM) performance (See AR 70-10). Each activity, which has been assigned responsibility for corrective action IAW AR 702-3 will report on the actions that have been taken to correct each failure mode identified during tests. Adequacy of failure analysis, appropriateness of corrective action, demonstration of corrective action by tests, verification of future implementation, and evaluation of effectiveness of the corrective action will be assessed by the CBTDEV, MATDEV, the technical and operational testers, and evaluators. An audit trail of changes will be established and reported to the design authority. In addition, the the MATDEV (MSCs/PMs) will use the RAM-scored data in the development of reliability and maintainability growth models and assess the impact of meeting the technical and operational thresholds.

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31. The IER is an independent evaluation of the system based on test data, test reports, studies, and other appropriate sources. IERs are prepared, approved, and published by the technical and operational independent evaluators at key milestone events. Under the CE concept, the independent evaluators will periodically update their evaluation of the system. The IER, a formal document of record, contains an assessment of the issues contained in the IEP and other issues as appropriate; the independent evaluator's conclusions; evaluation of test issues; the evaluator's position on the future capability of the system to fulfill the approved requirements; and identifies program constraints and their impact on the evaluation. The IERs are provided to the MADP review, as appropriate; the independent evaluator's conclusions; evaluation of test issues; the evaluator's position on the future capability of the system to fulfill the approved requirements; and identifies program constraints and their impact on the evaluation. The IERs are provided to the MADP review body. IERs are normally briefed by the TIE directly to the pre-ASARC or IPR; and by the operational independent evaluator directly to the ASARC, or IPR.

32. Update TEMP for next phase.

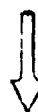
33. Update IEP/TDP/MEP for next phase.

34. Update OTP for FDTE and IOT&E for next phase.

35. Milestone I/II Review.

TEST AND EVALUATION				13
PROOF OF PRINCIPLE (POP)				
CBTDEV/ TRAINER	MATDEV	EVALUATORS	TESTERS	INDUSTRY
19 STAR REVIEW				
<div>22 ROC</div> <div>22 ROC</div>	<div>20 TEMP</div> <div>23 TTER</div> <div>28 TIR SUMMARY</div>	<div>21 IEP/TDP MEP</div>	<div>11 CONT EVAL</div> <div>27 SR</div> <div>26 INTEGRA. TECH TEST &amp; USER EXPER.</div> <div>29 TR</div>	<div>24 QTRR</div> <div>25 BUILD HARDWARE</div>
30 CORRECTIVE ACTION REVIEW.				
	<div>32 TEMP</div>	<div>31 IER</div> <div>33 IEP/TDP/MEP</div>	<div>34 OTP</div>	
35	M	I/II		

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## TEST AND EVALUATION

### Process Outline

36. Update TEMP.
37. Update IEP/TDP/MEP.
38. Contractor builds hardware/software system, conducts contractually required tests.
39. Instructor and Key Personnel (I&KP) is provided by the MATDEV based on the training requirements developed by TRADOC for the testers.
40. Operational Test Readiness Statements (OTRS) are provided by the trainer, CBTDEV, and MATDEV.
41. Same as item 23.
42. OTRR is a review to identify problems which may impact the conduct of an OT&E. An OTRR is conducted to determine changes required in planning, resources, or testing necessary to proceed with a specific OT. OTRR participants include the operational tester (chair), independent evaluator, MATDEV, user representative, logistician, HQDA staff elements, and others as necessary. The OTRR examines the OTRS and the safety release prior to the start of the test and may include review of initial or pilot tests. The OTRR is mandatory for major and DAP systems with the results reported to ASARC principals. An OTRR is conducted for other systems, as determined necessary by the operational tester.
43. The integrated testing in this phase includes FDTE, IO&E, DT&E, and qualification testing. T&E conducted during this phase matures development prototype hardware/software; provides a valid estimate of the system's operational effectiveness and suitability (including performance, survivability, reliability, availability and maintainability, safety, MANPRINT, and logistic supportability); ascertains whether engineering is complete; identifies design problems and ascertains that solutions to these problems are in hand; supports the PIP process; reduces design risks; establishes contractual compliance; validates general and detailed specifications, standards, and drawings for use to procure units of products; provides data for required readiness for test reviews; and evaluates technical and operational issues. Testing includes hard-tool prototypes to resolve OT issues. FDTE conducted in this phase refines and validates tactics, organization, and training before IOT&E.
44. Contractor provides hard-tool prototypes from production line.
45. Update TEMP.
46. Update IEP/TDP/MEP.
47. Update OTP.

# TEST AND EVALUATION

13

## DEVELOPMENT PROVEOUT

CBTDEV/ TRAINER	MATDEV	EVALUATORS	TESTERS	INDUSTRY
40 OTRS	36 TEMP 39 I&KP 41 TTRR 28 TIR SUM	37 IEP/TDP MEP	42 OTRR 43 INTEGRA. FDTE IOT&E & TECH TESTING 27 SR	38 BUILD HARDWARE PROTOTYPE 44 HARDTOOLED PROTOTYPE BUILD HARDWARE
30 C	A		48 TR	
50 ISSUES	45 TEMP	49 IER 46 IEP/TDP/MEP	47 OTP	
51 MILESTONE III				

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## Process Outline

- 48. Same as 29.
- 49. Same as 31.
- 50. Update issues.
- 51. Milestone III review.
- 52. Update TEMP.
- 53. Update IEP/TDP/MEP.
- 54. Same as 42.
- 55. Same as 40.
- 56. If qualification testing was not completed in the Development Proveout Phase, it will be completed in this phase. Sufficient testing should have been completed in the last phase to permit the DOTE to be reported to Congress.
- 57. Same as 31.
- 58. Same as 29.
- 59. Preplanned Product Improvement (P3I) testing. Testing of the first block improvements to the system, based on Proof of Principle and Development Proveout Phase testing, occurs on production items.

This testing is integrated by TIWG and IAW AR 70-21.



TEST AND EVALUATION					13
PRODUCTION/DELOYMENT					
CBTDEV/ TRAINER	MATDEV	EVALUATORS		TESTERS	INDUSTRY
	52 TEMP	53 IEP/TDP/MEP	11 C E	54 OTTR INTEG QUAL & 56 FOT&E 58 TR	BUILD HARDWARE
55 OTRS		57 IER			
59	P3	T&E			

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## **Chapter 14**

# **BASIS OF ISSUE PLAN (BOIP) AND QUALITATIVE AND QUANTITATIVE PERSONNEL REQUIREMENTS INFORMATION (QQPRI)**

## Chapter Guide

The purpose of the Basis of Issue Plan (BOIP) and Qualitative and Quantitative Personnel Requirements Information (QQPRI) is to predict the total required quantity of a new or improved/modified item requiring a new line item number (LIN); its associated support items of equipment (ASIOE); and the number of personnel and skills required to operate, maintain, and transport the item. The BOIP feeder data (BOIPFD) and QQPRI are initiated by an AMC MSC through the U.S. Army Equipment Authorization Review Activity (USAEARA), processed together as a package by TRADOC, and reviewed and approved by HQDA.

The BOIP is a planning document that lists specific levels at which a new or modified item may be placed in a unit/organization, the quantity of the item proposed for each organizational element, and other equipment and personnel changes required as a result of the introduction of the new/modified item. The BOIP is neither an authorization document, a fielding or distribution plan, nor a redistribution plan for replaced items.

There may be three iterations of the BOIP: an initial BOIP, developed during the Proof of Principle Phase; amended BOIPs (ABOIP), which are based on updated information provided, as required by AMC 39 months and again 30 months prior to the first-unit-equipped date (FUED); and prepared during the Development Proveout Phase prior to Milestone III. A BOIP may be amended at any time during system development when new or changed information becomes available.

The QQPRI is a compilation of specified organizational, doctrinal, training, and personnel information on new or modified materiel items. This information is used to determine the need for the establishment or revision of Military Occupational Specialties (MOSs) or Additional Skill Identifiers (ASIs) and to prepare plans to provide the numbers of trained personnel required for operating and supporting a new or modified materiel item. The QQPRI is based in part on human factors studies, logistic support analyses, training strategy research, and behavioral research. It provides the most current information concerning numbers and qualifications of personnel involved in the use, maintenance, and transport of the proposed item. Where appropriate and feasible, the QQPRI describes personnel duties and tasks to include work units, performance standards, and/or man-power authorization factors, recommended MOSs, skill levels, and organization. It also includes implications for personnel selection and training, including major items for training support.

There may be three iterations of the QQPRI: an initial QQPRI developed during the Proof of Principle Phase; amended QQPRI (AQQPRI) prepared, as required, during the Development Proveout Phase at 39 months and again 30 months prior to FUED. Whenever changes occur, and AQQPRI is processed.

A HQDA-approved BOIP and a HQDA Operator and Maintainer (O&M) Decision are required at Milestone I/II as important inputs to the "Go-No Go" decision to be made at that juncture in the acquisition process. A HQDA-approved ABOIP and HQDA final O&M decision for each item of a new system, to include all special test sets and tool kits that qualify for production, are required prior to Milestone III and type classification (TC). All developmental items of equipment required to support a system (TMDE, tool sets, test sets) must be identified during the BOIP process. This allows user MACOMs and HQDA to program people, money, and facilities to support new equipment when it arrives at using units.

BOIPs developed in support of nondevelopmental items (NDI) (chapter 17) will follow the expedited process. BOIPFD and QQPRI submitted in support of NDI systems will be submitted by the AMC MSC through USAEARA to HQ TRADOC 12 to 39 months prior to FUED, depending on the NDI AS.

### Responsibilities

Issuance of an approved O&O Plan is the triggering event for the BOIP and QQPRI. AMC MSC is responsible for the preparation of the BOIPFD and for initiating the QQPRI. Data Interchange (DI) documents are required for all component major items and ASIOE listed on the BOIPFD and submitted with the BOIPFD/QQPRI package to USAEARA. DI is needed by the procuring command to forecast requirements to support the BOIP item.

TRADOC is responsible for preparation of the BOIP, completing the QQPRI, and staffing of both documents through involved TRADOC schools, integrating centers, the Soldier Support Center National Capital Region (SSC-NCR), and gaining user commands. USAEARA also staffs the BOIPFD off-line with the U.S. Army Central TMDE Activity to assure proper TMDE is listed and that acquisition approval has been given for items which are TMDE.

### Chapter Proponent Offices

14.3

TRADOC: ATCD-08

AMC: AMCSM-PIM

### References

DA: AR 71-2  
AR 71-9  
AR 570-2  
AR 611-101  
AR 611-112  
AR 611-201  
AR 750-43  
AR 1000-1  
PAM 11-25  
AMC: AMC-R 700-5

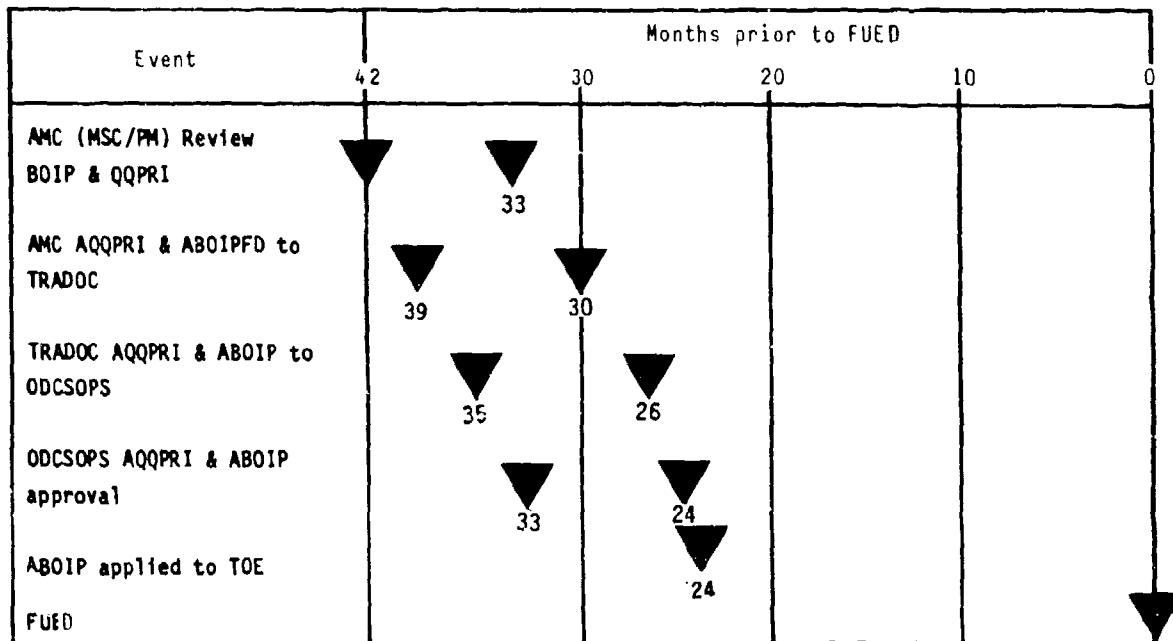
## Time Constraints

A BOIP/QQPRI package for a new materiel item must be processed according to a schedule that will assure HQDA approval, along with the materiel system requirements document (e.g., ROC/TDR) prior to Milestone I/II. Forty-two and thirty-three months prior to the FUED, AMC MSC and PM will initiate a formal review of previous BOIP/QQPRI submissions, in coordination with TRADOC, to identify required changes that could impact on either the principal item, ASIOE, personnel, and/or training. The ABOIP/QQPRI packages resulting from these reviews will be processed according to the following schedule.

# **BASIS OF ISSUE PLAN (BOIP) and QUALITATIVE AND QUANTITATIVE PERSONNEL REQUIREMENTS INFORMATION (QQPRI)**

**14**

## **Time Constraints**



**14.5**

BASIS OF ISSUE PLAN (BOIP)  
and  
QUALITATIVE AND QUANTITATIVE PERSONNEL REQUIREMENTS INFORMATION (QQPRI)

Submittal and Approval Schedule



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## Procedure

The detailed procedures for the preparation, review, and approval of the BOIP and QQPRI are described on the following pages in the form of descriptive paragraphs on the left-hand pages and corresponding flow charts on the facing pages.

When appropriate, a "NOTE" has been added to the end of a paragraph to highlight options to the action called for in the paragraph or to provide some other insight into the action described.

## Process Outline

1. Following the issuance of the O&O Plan and JMSNS, when appropriate, TRADOC in coordination with AMC prepares a requirements document during the Proof of Principle Phase. At the same time, the proponent AMC MSC initiates the BOIP/QQPRI process by preparing the BOIPFD and DI requirements. The MSC assigns a developmental Line Item Number (Z-LIN) for each item that is to be type classified standard and assigns a logistics control code A(TC-STD LCC-A). Logistic Support Analysis (LSA) (chapter 12) and Manpower and Personnel Integration (MANPRINT) techniques, such as Hardware vs. Manpower (HARDMAN) and Early Comparability Analysis (ECA) (chapter 11) performed early in the development cycle, provide significant source data to the BOIP/QQPRI process. The MSC sends the BOIPFD; the DI prepared in accordance with Section VI, Chapter 3, AMC-R 700-5; and the QQPRI, as a package, to USAEARA within 60 days of the assignment of a Z-LIN (30 days for NDI-expedited process).

2. USAEARA reviews the BOIPFD, DI, and QQPRI for completeness and accuracy; forwards the BOIPFD and QQPRI, as a package, to HQ TRADOC; and forwards the DI to the Depot Systems Command (DESCOM) and the procuring command identified in Block 6 of the AMC Form 1275-R (Interchange of Support Equipment Data).

3. HQ TRADOC assigns Army BOIP and QQPRI numbers, prepares a tasking letter to the proponent TRADOC school and other interested TRADOC schools and centers, and distributes the BOIP/QQPRI package within HQ TRADOC for comment and input.

14.7

## Process Outline

4. Based on the tasking letter and the BOIPFD and QQPRI, the proponent TRADOC school refines the QQPRI, prepares a BOIP and a training impact statement, coordinates the BOIP and QQPRI with other interested TRADOC schools, and incorporates their input. The proponent TRADOC school forwards the BOIP/QQPRI package to the appropriate TRADOC integrating center for staffing.

5. The integrating center reviews and forwards the BOIP/QQPRI package to HQ TRADOC (ATCD-OB).

6. HQ TRADOC then takes the following actions:

a. Prepares a tasking letter to MACOMs requesting comments and input to the Table of Distribution and Allowances (TDA), Joint Table of Allowances (JTA), Additive Operational Projects (AOP), and Tables of Organization and Equipment (TOE) (90 days).

b. Provides a complete BOIP/QQPRI package to the SSC-NCR for the proposed O&M decision and personnel analysis (30 days).

c. Forwards a copy of the package to the proponent MSC through USAEARA for review of TRADOC input (30 days).

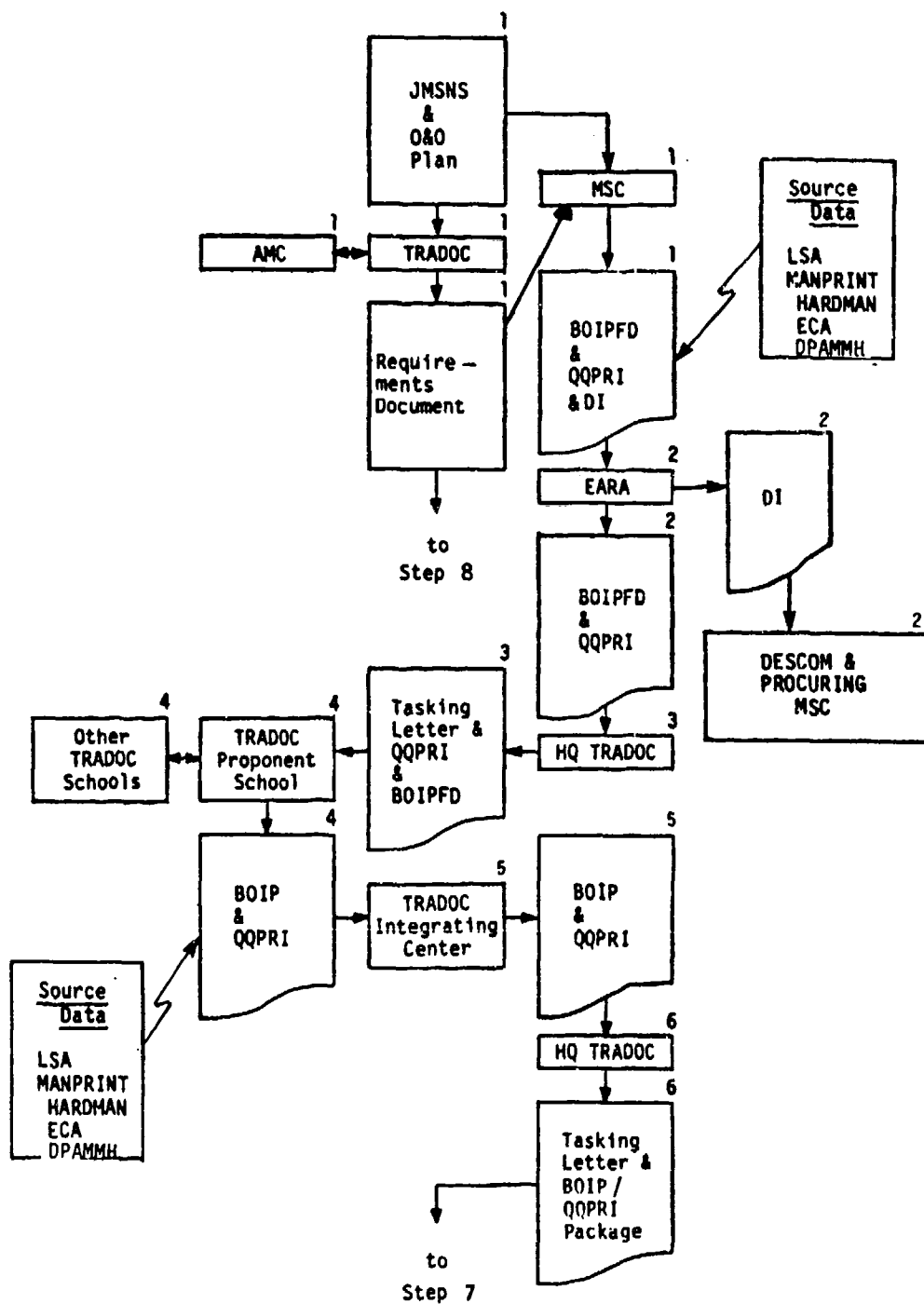
d. Internally staffs the BOIP/QQPRI package (30 days).

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## NOTE

For those systems that require the development of a new organization, the TRADOC proponent school will also prepare an Automated Unit Reference Sheet (AURS) as an addition to the BOIP/QQPRI package. When an AURS accompanies the package, the TOE personnel and ASIOE requirements will be included in the AURS and not in the BOIP.

**Process Outline**



**14.9**

## Process Outline

7. The SSC-NCR reviews the BOIP/QQPRI package, performs a personnel analysis, and proposes an O&M decision to HQ TRADOC. Simultaneously, the proponent MSC reviews TRADOC's input to the BOIP/QQPRI package and submits comments and recommendations back to HQ TRADOC through USAEARA.

8. HQ TRADOC convenes a board to review the BOIP/QQPRI package, which now includes the proposed O&M decision and review comments of the proponent MSC. However, the package probably will not yet include input from the MACOMs. The board-reviewed package is forwarded for HQDA staffing and approval to the ODCSOPS' agent, U.S. Army Force Development Agency (USAFDSA), Pentagon, ATTN: MOFD-A, Washington, D.C. 20310-0460.

9. The ODCSOPS' agent, USAFDSA (MOFD-A), staffs the BOIP/QQPRI package within HQDA, including ODCSRDA, ODCSOPS, and ODCSPER. The ODCSPER makes the O&M decision from QQPRI information and provides it to the ODCSOPS' agent, USAFDSA (MOFD-A). The ODCSOPS agent, USAFDSA (MOFD-A), consolidates HQDA comments; approves the BOIP; and returns the approved package to HQ TRADOC.

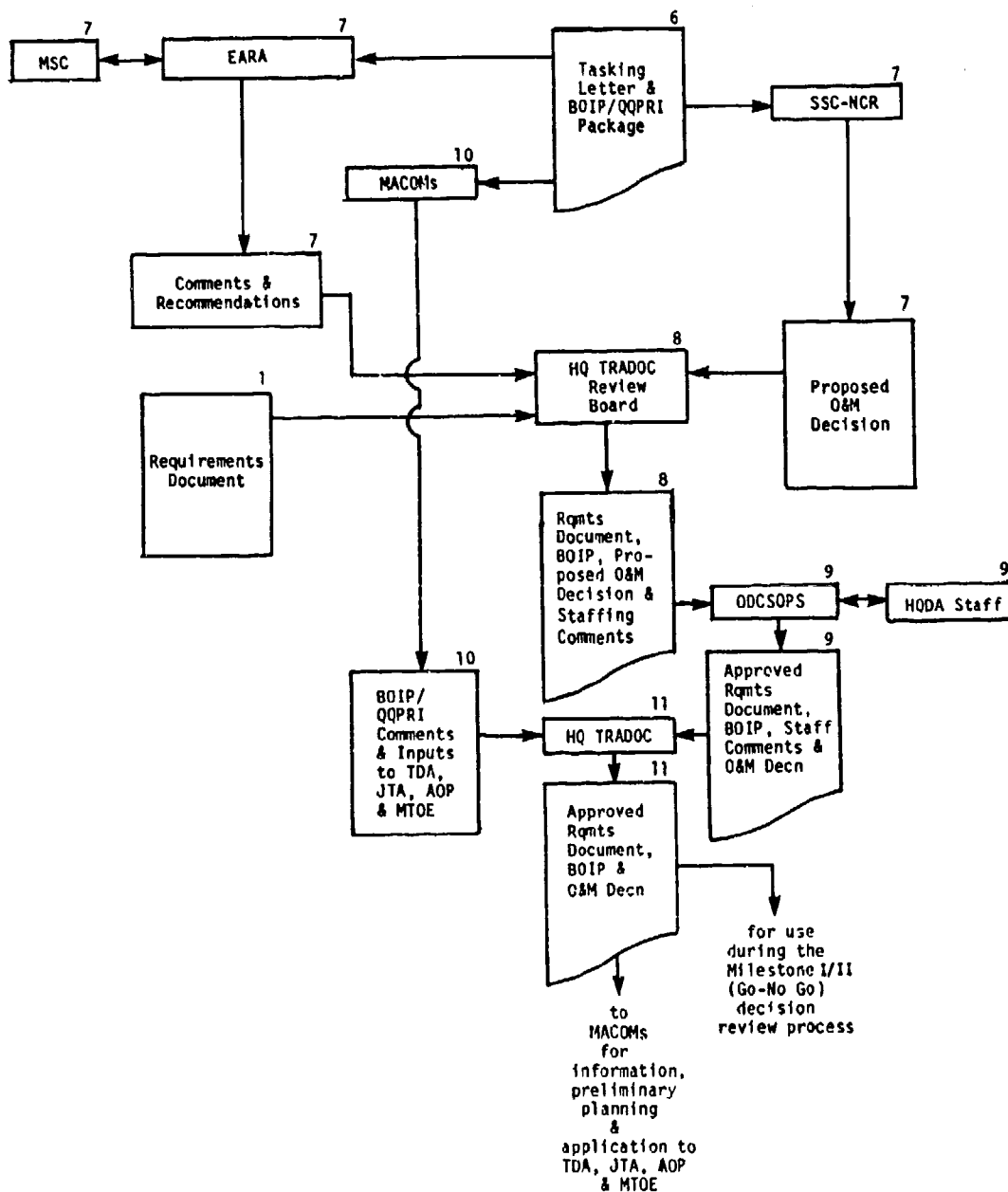
10. The MACOMs complete the review of the BOIP/QQPRI package and submit comments and recommendations to HQ TRADOC.

11. HQ TRADOC incorporates MACOM input and changes directed by HQDA. Any MACOM input that results in major changes to the BOIP/QQPRI package will be restaffed with HQDA. After incorporation of all changes, HQ TRADOC prepares a transmittal letter with the approved BOIP and O&M decision as enclosures. This package is then forwarded to the MACOMs and through USAEARA to the AMC MSC and PM for preliminary planning and information.

## NOTE

Amendments to the BOIP and/or QQPRI will be submitted as changes to equipment and/or personnel are identified. Amendments will be numbered chronologically and follow the same staffing flow as the initial submission.

# **Process Outline**



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## **Chapter 15**

# **MATERIEL ACQUISITION DECISION PROCESS (MADP) REVIEWS**



## Chapter Guide

Materiel Acquisition Decision Process (MADP) reviews are required at key milestones for all system acquisition programs. MADP reviews serve as the forum to surface critical issues that must be resolved before decisions can be made and to recommend appropriate action to the decision authority. Views of all participating agencies are presented and considered. A full interchange of information and freedom to consider and accept other courses of action are essential. MADP review members must have sufficient authority and technical expertise to allow evaluation of new information presented and to modify their agencies' positions, if appropriate.

### MADP REVIEW LEVELS

The three levels of MADP reviews are--

The Joint Requirements and Management Board (JRMB) provides information and recommendations to the Secretary of Defense (SECDEF) when decisions are necessary on DOD major programs. The Secretary of the Army (SA) is a member of the JRMB.

The Army Systems Acquisition Review Council (ASARC) develops the Army's course of action on DOD major programs in preparation for the JRMB review, and develops the basis for decision for the Army Acquisition Executive (AAE) on Designated Acquisition Programs (DAPs). CGs AMC and TRADOC are members of the ASARC.

The In-Process Review (IPR) makes recommendations to the appropriate decision authority when milestone decisions are required for systems that are IPR programs (all other programs not designated DOD major or DAP).

### MADP REVIEW BODIES

Technology Integration Steering Committee (TISC)

1. TISC is the decision body that considers high payoff materiel concepts for transition to the Proof of Principle phase of ASAP. The TISC also provides an early focus of high payoff battlefield system concepts which exploit breakthrough technology.

## Chapter Guide

2. The TISC is chaired by the AMC Deputy Chief of Staff for Technology Planning and Management. The other official members are the TRADOC Deputy Chief of Staff for Combat Development, the Commander, TRADOC Combined Arms Test Activity, and the AMC Deputy Chief of Staff for Development, Engineering and Acquisition. The TISC meets semi-annually in fall and spring and has two primary missions. The first is to identify high payoff materiel concepts to enter Proof of Principle. The other focus is to identify those high payoff materiel concepts which may not meet all the criteria for immediate entry into Proof of Principle but have plans in place to meet the criteria. TISC member staff organizations and project proponents will provide support to those TISC approved projects requiring follow-up actions to meet Proof of Principle criteria.

3. The criteria used for selection of projects to enter Proof of Principle include the following:

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a. The project must satisfy critical military capability needs, as defined in the Battlefield Development Plan (BDP) and Army 21, or otherwise provide a significant new military capability and will require hands-on operation in a tactical environment to adequately validate its military capability.

b. The project must incorporate proven technology for which the basic performance characteristics have been or can be validated in a technology base program. The project must be mature to the point of demonstration within 18-24 months. The actual demonstration timeframe is determined by technology maturity, availability, or resources and urgency of need.

c. The project must have planned resources within the funded portion of the program plans (e.g., MAMP).

d. An O&O Plan must be approved (prior to entering the Proof of Principle Phase).

4. The TISC will evaluate each project against a number of factors such as BDP deficiencies, Army-21 applicability, relation to key operational capabilities, maturity of the technology, available funding, status of the O&O Plan, and assessment of need to meet possible military conflicts. The TISC reviews will address, as a minimum, the following:

## Chapter Guide

a. Physical attributes of the system under development for conformation to user needs and applicable interface requirements.

b. Performance characteristics of the system under development against user requirements.

c. Personnel requirements to include operation and maintenance.

d. Life-Cycle Cost (LCC) projections and current funding profile.

e. Demonstration Concepts - site, resources, special test equipment, etc.

f. Acquisition strategies (AS) - overall strategy for acquiring the system. This spells out how the project will be tested, evaluated, and programed for execution, as well as identification of the key players, reliability, availability and maintainability plans, integrated logistics support plans, producibility engineering plans, and strategy for implementation of user requirements. This subject is covered in more detail in chapter 7.

g. Draft Test and Evaluation Master Plan (TEMP) as described in DOD 5000.3-M-1.

h. O&O Plans.

5. The TISC process is an integral part of the Mission Area Materiel Plan (MAMP) activities. While the majority of demonstration candidates will be derived from the MAMP notional and next generation systems, others may originate from other service R&D centers or industry. Candidates are referred to the appropriate Materiel Acquisition Manager (MAM) for integration into his overall planning strategy. The TISC and MAMP processes will be closely coordinated.

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## MATERIEL ACQUISITION REVIEW BOARD (MARB)

The MARB was established at HQ AMC and will be convened to review, advise, and ultimately approve the key strategies and plans for all DOD major programs and DAPs prior to entry into the Proof of Principle Phase and prior to the milestone decision reviews (MDR) I/II and III. The HQ AMC MARB will be comprised of senior level members and participants representing HQ AMC major functional areas, HQ TRADOC, Department of the Army, the AMC PM/MS, OTEA, AMSAA, and other representatives, as required. The MSCs will establish a single MARB to review, advise, and approve key strategies and plans for IPR programs in which the AMC MSC commander and TRADOC Center/School commander are the designated approval authorities. The MSC MARB will be organized and operated in a manner similar to the HQ AMC MARB. (See AMC-R 70-5, chapter 4, for expanded MARB policy and procedures.)

## Chapter Guide

## STAR Review

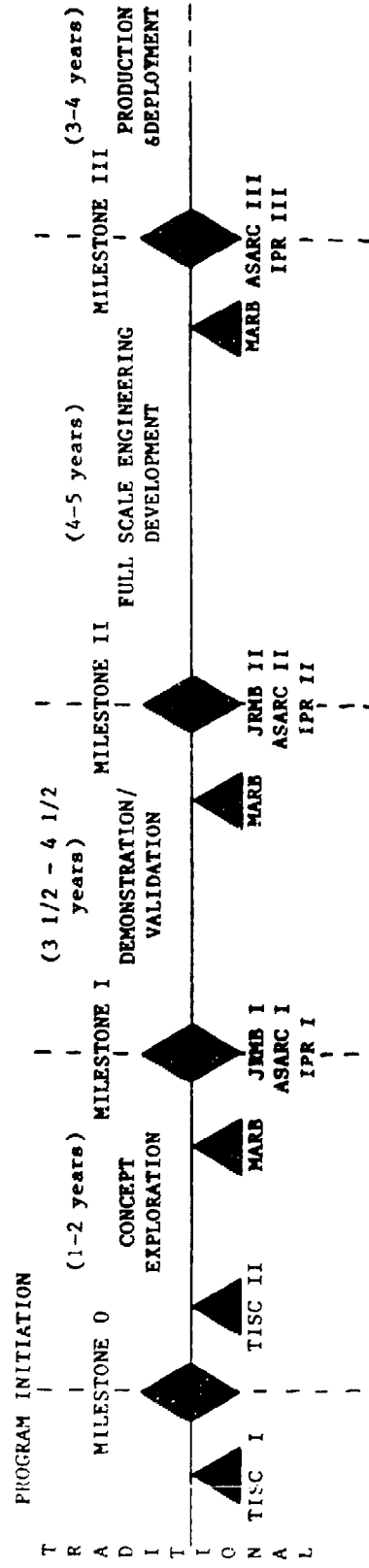
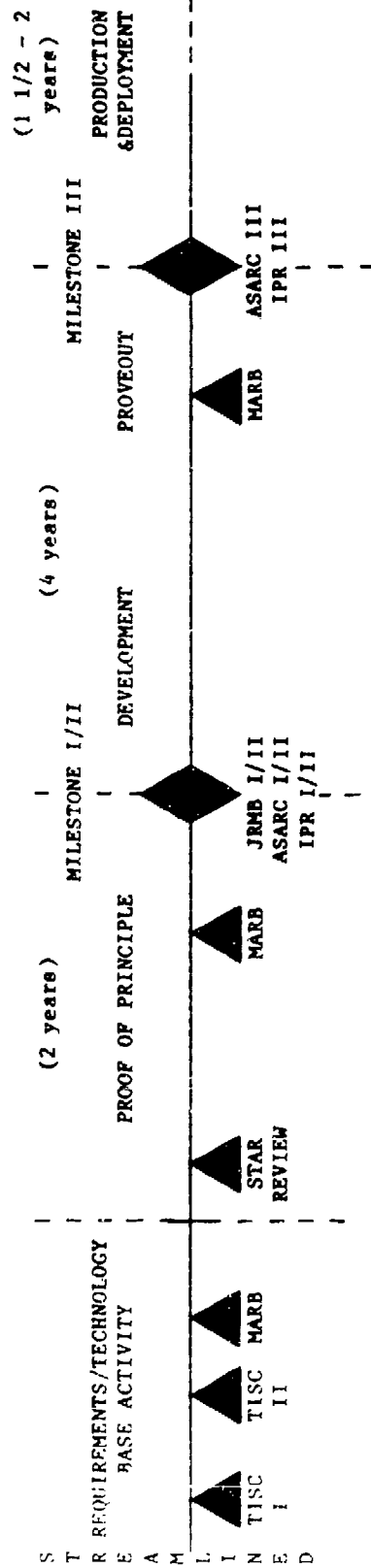
At the onset of Proof of Principle Phase, a Star Review will be convened to provide top-down consensus on basic program direction.

a. The Star Review verifies and lends senior leadership impetus to the basis program parameters and course of action outlined for the Proof of Principle Phase.

b. For DOD major programs and DAPs, the Star Review would be a "16 Star" type review (e.g., Under Secretary of the Army (USofA), Vice Chief of Staff, Army (VCSA), Commanding General (CG), TRADOC, and CG, AMC. Designation of appropriate "stars" for non-DOD major non-DAP programs (i.e., IPR programs) will be tailored to the designated decision authority level and specific conditions of each program (contained in the AS).

MADP REVIEWS

ARMY STREAMLINED ACQUISITION PROCESS (ASAP) MODEL FLOW CHART AND TRADITIONAL ACQUISITION PROCESS



## Chapter Guide

## MADP REVIEW MILESTONES

MADP reviews are held at each formal milestone. In the traditional process--

Milestone I is the first major decision point in the standard DOD acquisition process, when concept selection is made. This decision is a validation of the requirement, based upon preliminary evaluation of concepts, costs, schedule, readiness objectives, and affordability. It provides authority to develop the system sufficiently to support the next milestone decision. The first decision establishes thresholds and objectives to be met and reviewed at the next milestone, the AS for the recommended concept, and a dollar threshold that cannot be exceeded to carry the program through the next milestone.

Under ASAP, entry into the Proof of Principle Phase is not managed as a major milestone; but does require acquisition strategy approval (see page 15.9)--

## 15.8

Milestone I/II (DOD Milestone II) is the major decision point at which time a firm "Go-No Go" decision for development is made. The timing of this decision is flexible and depends upon the tailored AS approved by the decision authority.

Milestone III is the major decision point, at which time a production decision is made and authorization is given for the Production-Deployment Phase. Type Classification (TC) normally is part of the Milestone III decision. The Milestone III decision is delegated to the lowest level in the organization at which a comprehensive view of the program rests. Normally the Milestone III decision for a DOD major program is delegated, by the SECDEF, to the SA unless the thresholds established at Milestone I/II (DOD Milestone II) are breached.



## Chapter Guide

## MADP REVIEW DOCUMENTATION

All levels of MADP reviews, including IPR and TISC II, require the same basic documents for formal review. MADP documents required are as follows:

1. Upon completion of the Requirements/Technology Base Activities Phase and before entry into the Proof of Principle Phase.

a. Acquisition Strategy (AS). AS is set of broad concepts that provide direction and control for the overall program development and production effort. It becomes annex F to the DCP and should be maintained as an independent document (chapter 7).

b. O&O Plan/JMSNS. The O&O Plan describes how a system will be integrated into the force structure, deployed, operated, and supported in peacetime and wartime. It includes a performance annex and supports the Requirements/Technology Base Activities Phase for all programs. The JMSNS supports the mission need determination decision for program initiation and documents the identified Army need for DOD major programs (chapter 3).

c. Test and Evaluation Master Plan (TEMP). The TEMP clearly relates T&E efforts to critical technical and operational issues, explains the relationship between T&E schedules and program decision points, addresses the T&E to be accomplished in each program phase, shows the test articles planned to satisfy test objectives, and identifies the test support resource deficiencies (chapter 13).

d. Integrated Logistic Support Plan (ILSP). The ILSP describes the overall ILS program to include ILS requirements, tasks, and milestones for the immediate acquisition phase and projects ILS planning for succeeding phases. The ILSP serves as the source document for ILS input to other program documentation and for the program schedule to be entered into the Acquisition Management Milestone System (AMMS) (chapter 12).

## Chapter Guide

e. Transportability Engineering Analysis/Transportability Report (TEA/TR). The TEA/TR documents all prototypes and support equipment. A TR requesting TEA will be submitted to MTMC-TEA a minimum of 90 days prior to Milestone I/II and Milestone III. MTMC-TEA, upon receipt of the transportability report, prepares a transportability engineering analysis which documents the core information on which transportability review and approval are based. Transportability approval from MTMC is required prior to proceeding into the Development Proveout Phase.

f. International Armaments Cooperative Opportunities Plan (IACOP). This document ensures that opportunities to conduct cooperative research and development projects with NATO partner nations and other allies are considered during the early decision points in DOD's formal development review process in connection with any planned project. It also ensures that foreign technology and NATO standardization considerations be integral elements in the planning and execution of all programs/projects, provided that U.S. security is not jeopardized (AR 34-1).

g. Draft Solicitation Document(s).

h. System MANPRINT Management Plan (SMMP). The SMMP, prepared by TRADOC, summarizes the program/plan to address MANPRINT concerns throughout the materiel acquisition process. The SMMP is maintained and managed by TRADOC. A copy of the SMMP is provided to AMC for input into the ILSP (chapter 11).

i. Safety Release. The Safety Release documents the safety precautions to be taken by the operational tester to avoid system damage and personal injury based on development testing and/or a Safety Assessment Report (AR 70-10).

j. System Threat Assessment Report (STAR). A threat assessment tailored to and focused on a particular U.S. system. The STAR will serve as the basic threat document supporting system development (see appendix D).

k. Threat Support Plan (TSP). A management plan describing the actions necessary to ensure adequate threat support, the milestones, and primary action agencies (appendix D).

## Chapter Guide

1. Critical Intelligence Parameters (CIPs). Those threat characteristics identified by program managers that would critically impact on the effectiveness, survivability, security, or cost of a U.S. system (appendix D).

2. For Milestone I/II (Go/No-Go decision), upon completion of the Proof of Principle Phase (see AMC-R 70-5, chapter 4 for key plans and strategies to be reviewed by MARB).

a. Required Operational Capability (ROC). The ROC states concisely the minimum essential operational, technical, logistic, and cost information necessary to initiate the Development Proveout Phase of a system/ item (chapter 4).

b. Decision Coordinating Paper (DCP). The DCP includes the AS, summarizes system life-cycle planning, and provides a management overview of the program. The DCP is prepared by the MATDEV and is a top-level summary document which identifies alternatives, performance and cost goals, and thresholds. The DCP is limited to 18 pages, excluding annexes (AR 70-1, AR 15-14).

c. Integrated Program Summary (IPS). The IPS summarizes in greater detail than the DCP, various facets of the implementation plan for a system acquisition. The IPS is prepared by the MATDEV and is limited to 30 pages. The IPS is used only when requested by the decision authority. For DOD major programs, this request can be made only by the Defense Acquisition Executive (DAE) (AR 70-1).

d. Updated TEMP.

e. Test Report (TR). The TR is a formal document of record which reports the data and information obtained from the conduct of test and describes the conditions which actually prevailed during test execution and data collection (chapter 13).

f. Independent Evaluation Report (IER). The IER, a formal document of record, contains an assessment of the issues, the independent evaluator's conclusions, evaluation of test issues the evaluator's position on the future capability of the system to fulfill the approved requirements, an assessment of the adequacy of testing and the need for additional testing, and identifies program constraints and its impact on the evaluation (chapter 13).

g. Updated ILSP.

15.11

## Chapter Guide

h. Concept Formulation Package (CFP). The CFP establishes technical and economic specifications for the proposed system/item. It is prepared by TRADOC with input from AMC by a Special Task Force (STF) or a Special Study Group (SSG), if one is formed. It is used to document the concept formulation objectives (chapter 9).

i. Basis of Issue Plan (BOIP). The BOIP delineates quantities of the new system and personnel to be included in specific organization authorization and documents (chapter 14).

j. Qualitative and Quantitative Personnel Requirements Information (QQPRI). The QQPRI compiles specified organizational, doctrinal, training, and personnel information for a new or modified materiel item (chapter 14).

k. Environmental Assessment/Environmental Impact Statement (EA/EIS). The EA/EIS contains statements as to the environmental effects of a proposed system. If the EA shows that the system will impact greatly or be controversial, an EIS is prepared (AR 200-2).

l. Safety Assessment Report (SAR) and Health Hazards Assessment Report (HHAR). The Safety and Health Hazard Assessments determine safety and health hazard considerations during the acquisition process (AR 385-16, AR 40-10).

m. Configuration Management Plan (CMP). This plan is prepared per AR 70-37 and AMC Supplement 1 thereto. It ensures that a Configuration Management program is developed and that the Technical Data Package (TDP) is prepared, controlled, and audited to support the program objectives.

n. Updated IACOP, if required, to reflect changed status.

o. System Safety Program Plan (SSPP). The SSPP implements the system safety engineering program that will assess the safety of the system and assures that the system meets the user's safety requirements and regulatory safety standards.

p. Acquisition Plan (AP). The AP serves as a management integration and acquisition coordination document. It summarizes acquisition need, objectives, conditions, strategy, and related functional emphasis on contractual aspects. It also provides detailed planning for milestone charting.

## Chapter Guide

q. Computer Resources Management Plan (CRMP). The CRMP describes the development, acquisition, assessment, and support plans for computer hardware and software to be used in tactical systems.

r. TEA/TR Approval.

s. Updated SMMP.

t. HFE Analysis (HFEA), if appropriate. HFEA presents a formal assessment of the effectiveness of planning and execution of six MANPRINT domains: HFE, manpower, personnel, training, safety, and health hazard assessment.

u. Vulnerability Assessment for Non-Combat Threats, if appropriate. Assessment of potential vulnerabilities of weapon systems and subsystems to accidents, terrorist activities, or other unplanned events.

v. System Safety Risk Assessment (AR 385-16).

w. Safety Release. The Safety Release documents the safety precautions to be taken by the operational tester to avoid system damage and personal injury based on technical testing, the SAR, and MATDEV's safety release recommendation, if required and/or requested (AR 70-10).

x. Cost and Operational Effectiveness Analysis (COEA) (for DOD major programs and DAPs) or appropriate cost benefit analysis for IPR programs. The COEA documents the investigation of comparative effectiveness of alternative means of meeting a need/requirement, the validity of a need/requirement in a scenario approved by HQDA and HQ TRADOC, and the cost of developing, producing, distributing, and sustaining each alternative in a military environment.

y. Baseline Cost Estimate (BCE). The BCE represents a detailed cost estimate of the weapon system's total life-cycle, acquisition, and ownership developed by the PM office. It is used as cost input for all requirements, decision, and support, and documents requiring funding information. It is the basis for subsequent tracking and auditing of the program.

z. Draft Request for Proposal (RFP)/other solicitation documents.

15.13

## Chapter Guide

aa. Product Improvement Proposal (PIP).

ab. Product Assurance Plan. The Product Assurance Plan addresses reliability, availability, and maintainability (RAM); quality hardware and software; independent verification and validation; and system assessment to ensure user satisfaction, mission and operational effectiveness, and conformance to specified requirements.

ac. Value Engineering (VE).

ad. Production Readiness Plan. The Production Readiness Plan addresses the availability of critical materials, Government investment in production facilities, ways to increase competition in production, industrial preparedness planning, Producibility, Engineering and Planning (PEP), VE, production risks and action necessary to reduce such risks, production readiness review milestones, engineering support to overcome problems and reduce costs, minimum sustaining rate, and requirement for a contractor-prepared production plan.

ae. Updated System Threat Assessment Report (STAR).

af. Updated Threat Support Plan (TSP).

ag. Updated Critical Intelligence Parameter (CIP).

3. For Milestone III, upon completion of the Development Proveout Phase (see AMC-R 70-5 chapter 4 for key plans and strategies to be reviewed by MARB).

- a. Updated DCP.
- b. IPS.
- c. Updated TEMP.
- d. TR.
- e. IER.
- f. Safety Release.
- g. Updated ILSP.
- h. Updated BOIP.
- i. Updated QQPRI.
- j. EA/EIS.
- k. Updated System Safety Risk Assessment.
- l. Updated SAR and HHAR.
- m. Production Readiness Plan.
- n. Updated AP.

## Chapter Guide

- o. Draft RFP/other solicitation documents.
  - p. Updated CRMP.
  - q. TEA/TR Approval.
  - r. Updated SMMP.
  - s. Updated HFEA (if appropriate).
  - t. Updated Vulnerability Assessment for Non-Combat
- Threats.
- u. Updated IACOP, if required, to reflect changed status.
  - v. Type Classification (TC). TC identifies the life-cycle status of a materiel system after a production decision by the assignment of TC designation. It records the status of a materiel system in relation to its overall life history as a guide to procurement, authorization, logistical support asset, and readiness reporting. It is the Army implementation of the OSD designation "accepted for Service use."
  - w. Updated CRMP.
  - x. Updated Production Readiness Plan.
  - y. Updated System Threat Assessment Report (STAR).
  - z. Updated TSP.
  - aa. Updated CIPs.

After a milestone review, the decision authority issues a decision memorandum providing direction for the program. There are two different decision memorandums used:

Secretary of Defense Decision Memorandum (SDDM) documents. For DOD major programs, each SECDEF decision, establishes program goals and threshold reaffirms established needs and program objectives, authorizes exceptions to acquisition policy and provides direction and guidance for the next phase of the acquisition process.

System Acquisition Decision Memorandum (SADM) provides the Army decision authority's milestone decision for all DAPs and IPR programs, including--approval of goals and thresholds for cost, schedule, performance, and supportability; approval of exceptions to the normal acquisition process and other direction, as appropriate.

## Chapter Guide

## PREPARATION FOR MADP REVIEWS

HQDA (7DCSRDA) is responsible for ASARC/JRMB preparation, to include development of schedule and agenda for the ASARC and the dissemination of this information to the attendees. Detailed procedures governing ASARC/JRMB are provided in AR 15-14.

The project manager (PM) for an established program briefs the ASARC/JRMB. The ASARC chairman may select critical issues to be addressed by other briefers. A preliminary review (PR) for ASARC members, approximately 1 month prior to the ASARC, with early distribution of relevant information, is part of the preparation for the ASARC prescribed by AR 15-14. ASARC briefers within AMC are scheduled to prebrief their presentations to the AMC Command Group prior to the PR. The AMC position on DOD major programs and DAPs is approved by CG, AMC, prior to the PR.

AMC and TRADOC are jointly responsible for IPRs. Normally, IPRs are held at AMC MSCs and the MSC commander or the Research and Development Center director appoints the IPR chairman. The IPR chairman assembles the IPR agenda package, staffs it within AMC, develops the AMC position, and provides the package to IPR participants. Joint final decision authority for all IPR programs is the Commander MSC and Commander TRADOC Center School. On an exception basis, HQ AMC and HQ TRADOC are the final approval authority. (See AMC-R 70-5).

Official IPR participants include members and observers.

a. Members will include the designated representatives of--

- (1) AMC as the MATDEV (Chairman).
- (2) TRADOC as the CBTDEV.
- (3) U.S. Army Logistics Evaluation Agency (USALEA) as the logistician.
- (4) The trainer, if different than the CBTDEV.
- (5) The appropriate computer authority, when Automatic Data Processing (ADP) resources form an integral part of the system under development (see AR 25-5.)
- (6) The Military Traffic Management Command (MTMC) if transportability analysis has identified any transportability issues which impact transportability approval. Otherwise, MTMC is designated an observer participant.



## Chapter Guide

b. Observer status will be extended to--

- (1) HQ AMC WSSM.
- (2) Appropriate independent evaluators who will present the results of TT and operational test (OT) evaluations directly to the IPR.
- (3) HQDA representatives as determined by the IPR chairman.
- (4) Representatives from other agencies responsible for related research, development, test, and evaluation (RDTE) efforts, as determined by the IPR chairman.
- (5) Representatives of U.S. Army Central Test Measurement and Diagnostic Equipment (TMDE) Activity (USACTA), and PM for TMDE when TMDE is required as a support item to the system being acquired, or if the system itself is TMDE.
- (6) A representative from the central DA Metric Office (AMCTM-S).
- (7) The PM who is expected to take part throughout the entire IPR proceedings.
- (8) A representative from U.S. Army Human Engineering Laboratory for all systems with HFE/MANPRINT considerations.
- (9) A representative from the agency responsible for providing operational logistic support if different than the MATDEV.
- (10) A representative from U.S. Army Materiel Readiness Support Activity (USAMRSA) to present results of logistics status review, logistics support analyses, or logistics fact sheets.
- (11) A representative from HQ AMC Battlefield Information/Command Control, Communications and Computers Division (AMCDE-SB) for systems with computer resources to be fielded with tactical units.
- (12) A representative from PM Training Devices (PM TRADE) when TRADE is required to support the system.
- (13) The depot logistician if there are depot requirements for the system.
- (14) A representative of the IME Division, USATECOM, if IME program items are involved.
- (15) A representative from HQ AMC Safety Office (AMCSF), if there are safety issues.
- (16) A representative from U.S. Army Environmental Hygiene Agency if a safety or health hazard has been identified.
- (17) A representative for the U.S. Army Defense Ammunition Center and School for systems that will transport hazardous material.
- (18) A representative from U.S. Army Security Affairs Command (AMCDS).
- (19) A representative of PM SMOKE, if smoke items are involved.

15.17

## Chapter Guide

(20) A representative from HQ AMC DCS for Intelligence (AMCMI) for HQ AMC IPRs; and MSC Intelligence Office for MSC IPRs to assure that threat is presented.

(21) Other specific activities as designated, because of peculiarities in the system.

(22) DCSRDA will furnish the HQDA representative at IPRs. The HQDA observer may attend program reviews at his direction. Other HQDA observers may attend an IPR on an exception basis. These exceptions will be coordinated through the DCSRDA observer.

(23) PM Mobile Electric Power (PM MEP) for systems with mobile electric power requirements or environmental control equipment requirements.

MADP REVIEWS and the PLANNING, PROGRAMING, BUDGETING and EXECUTION SYSTEM (PPBES):

Preparation for MADP reviews must include coordination with the PPBES to determine that sufficient resources are in the Five-Year Defense Plan/Extended Planning Annex, or can be programed, to execute MADP agenda package recommendations. PPBES reviews must ensure recent materiel acquisition decisions are reflected and supported.

## CHANGES TO IPR PROGRAM REQUIREMENTS DOCUMENTS:

HQ AMC/HQ TRADOC/HQ LEA must approve all changes to requirements documents involving tradeoffs in performance, e.g., mean-time-between failures (MTBF), weight, and changes in composition of a family of equipment, resulting in dollar values which increase but do not exceed the threshold criteria for changing the requirements document level; R&D cost increases greater than 10 percent or exceeding \$1 million; procurement cost increases greater than 10 percent or exceeding \$4 million; or schedule slippage greater than 6 months or any schedule slippage that will impact the initial procurement year or require ABOIP submission.

HQ AMC and HQ TRADOC also retain approval authority for changes to IPR program requirements documents whose output is a Government-Furnished Equipment (GFE) item to one or more major programs, e.g., radios.

MSCs can recommend approval of routine changes to requirements documents resulting from tradeoffs in performance agreed to by TRADOC and AMC which do not change the HQDA approved BOIP.

## Chapter Guide

Transmittal letters on IPR agenda packages must contain a notice that the package includes proposed changes to the requirements document, with supporting rationale as appropriate enclosures.

## NOTE

Changes to requirements documents should be recorded on a DA Form 2028. If changes are extensive, new requirements document pages should be included in the IPR agenda package along with proposed BOIPFD. For IPRs (formal, informal, or special) addressing requirements document changes, a fully coordinated position by voting members will be reflected in the IPR minutes and be submitted to AMC/TRADOC headquarters for joint AMC/TRADOC headquarters staffing by the WSSM and TRADOC System Manager (TSM).

15.19

## Responsibilities

AMC: Prepare the IPR agenda responsibilities package/establish the AMC position.

Provide the IPR agenda package to the IPR participants.

Chair the IPR.

Prepare the IPR minutes and submit them to the approval authority.

Record approved IPR results in the Materiel Status Record.

TRADOC: Appoint the TRADOC IPR member.

Review and comment on the IPR agenda package.

Establish the TRADOC IPR position.

Participate in the IPR meeting.

## Chapter Proponent Offices

AMC: AMCDE-P

TRADOC: ATCD-E

## References

The following documentation directs or influences the IPR process:

DA: AR 15-14  
AR 70-1

AMC: AMC-R 70-5 Draft

15.20

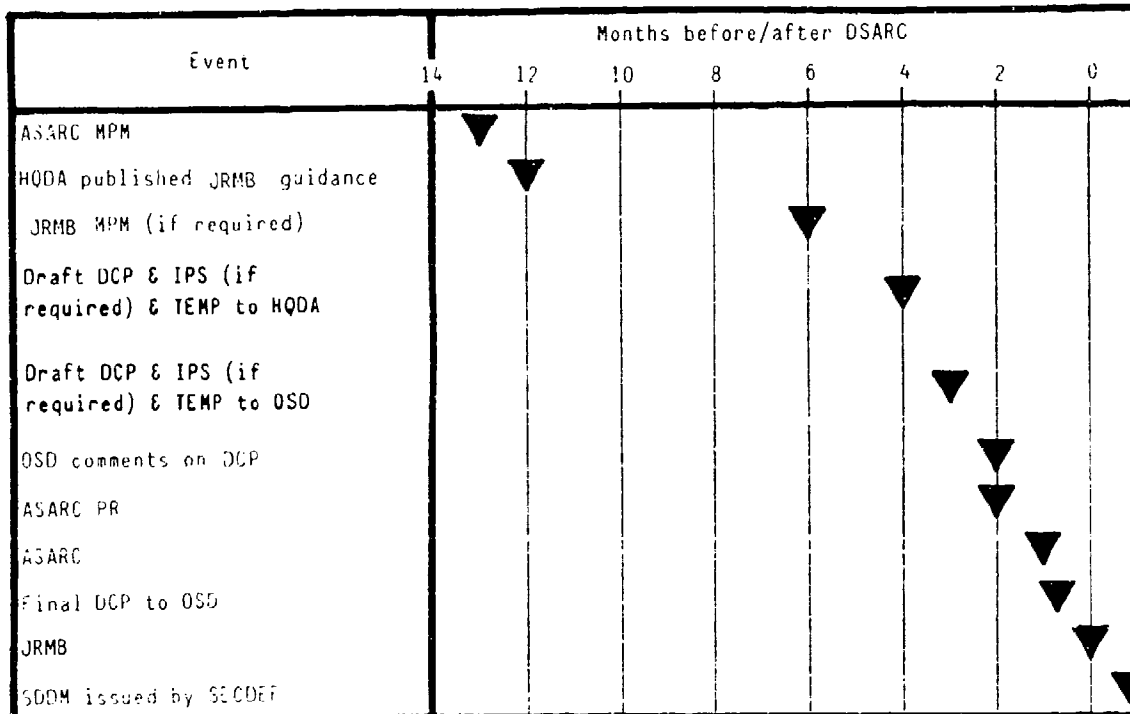
## Time Constraints

The MADP process is time-constrained in two ways: first, JRMB/ASARC/IPRs must be scheduled to meet milestone decision dates established for the program; and second, once a JRMB/ASARC/IPR is scheduled, certain suspense dates are established which are required to be met by the controlling regulations, i.e., AR 15-14 and AR 70-1. These time constraints and suspense dates are shown graphically in the charts below and on the next page.

# MATERIEL ACQUISITION DECISION PROCESS REVIEWS (MADP)

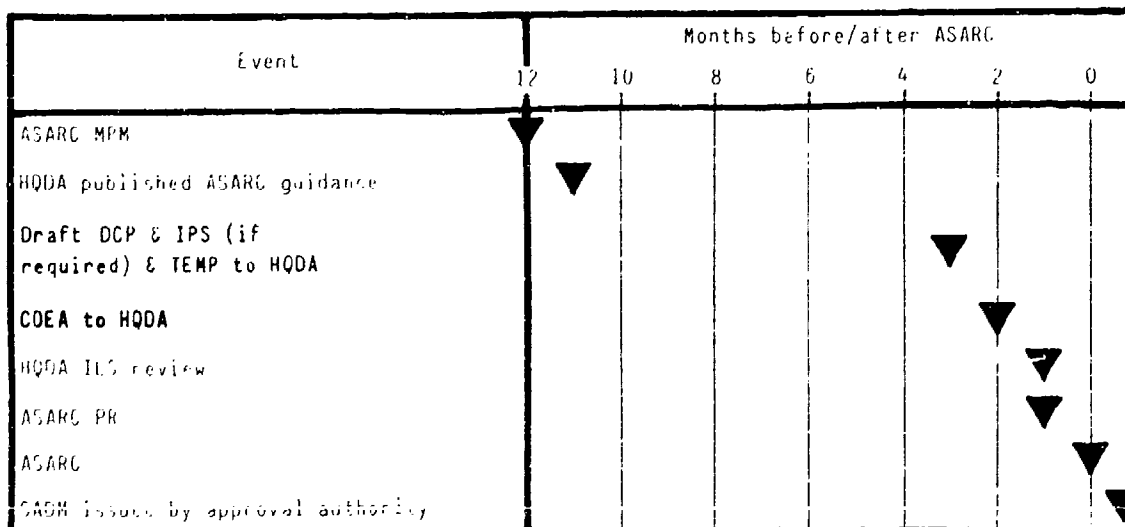
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## Time Constraints



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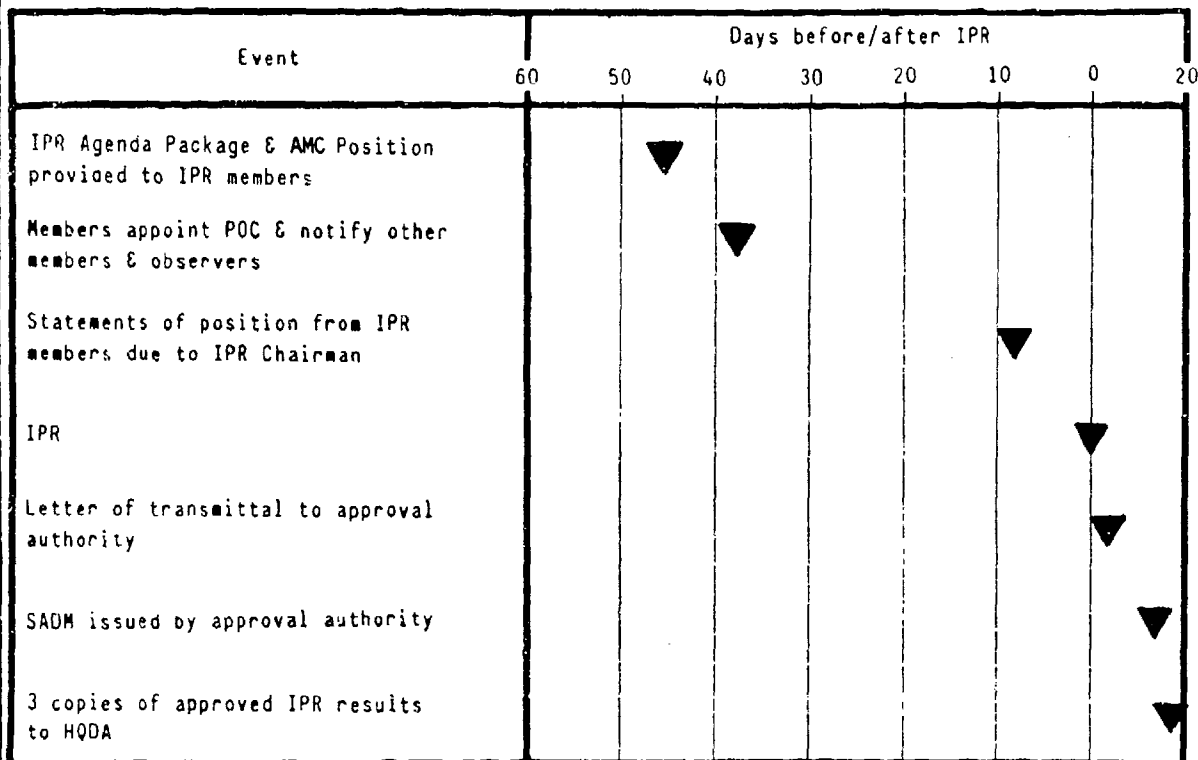
## JOINT REQUIREMENTS AND MANAGEMENT BOARD (JRMB) REVIEW SCHEDULE



## ARMY SYSTEMS ACQUISITION REVIEW COUNCIL (ASARC) REVIEW SCHEDULE

# MATERIEL ACQUISITION DECISION PROCESS (MADP) REVIEWS

## Time Constraints



15.22

## IN-PROCESS REVIEW (IPR) SCHEDULE

### Abbreviations Used

ASARC	Army Systems Acquisition Review Council
COEA	Cost and Operational-Effectiveness Analysis
DCP	Decision Coordinating Paper
IER	Independent Evaluation Report
ILS	Integrated Logistic Support
ILSP	Integrated Logistic Support Plan
IPS	Integrated Program Summary
JRMB	Joint Requirements and Management Board
MPM	Milestone Planning Meeting
POC	Point of Contact
PR	Preliminary Review
SADM	System Acquisition Decision Memorandum
SDDM	Secretary of Defense Decision Memorandum
TMEC	TRADOC Materiel Evaluation Committee

### Procedure

Since AMC and TRADOC are primarily concerned with the IPR process, only the procedure for the IPR is shown on the following pages in the form of descriptive paragraphs on the left-hand page and corresponding flow charts on the facing page.

When appropriate, a "NOTE" is added at the end of a paragraph to highlight options to the action called for in the paragraph or to provide some other insight into the action described.

## Process Outline

1. The IPR Chairman, in coordination with participating Army agencies, particularly the TMEC, and other Services, if applicable, selects the IPR date.
2. The IPR chairman compiles IPR supporting documentation in an IPR package and develops a coordinated AMC IPR position.
3. The IPR chairman staffs the IPR package and the proposed AMC IPR position with: USA MRSA (AMXMD), USAEARA (AMXEA-C), HQ AMC (AMCDE-P), the Developing Command/Laboratory/R&D Center, Project Personnel (as required), U.S. Army Test and Evaluation Command (AMSTE-TO), PM TRADE for systems with training device considerations, U.S. Army Materiel Systems Analysis Agency (AMSAA) (AMXSY) (when AMSAA is independent evaluator), HEL detachment, U.S. Army Security Affairs Command (AMCDS), and other offices as required, e.g., MSCs developing supporting equipment, USACTA.

15.24

## NOTE

AMCDE-PA and the appropriate WSSM will coordinate the AMC position within the headquarters and will provide HQ AMC concurrence/comments including resolution of differences within the headquarters.

4. The AMC position is reviewed and approved by the IPR decision authority, e.g., MSC Commander, HQ AMC.
5. The IPR chairman distributes the IPR Package and the AMC position to the IPR participants (members and observers), including the TMEC members, NLT 45 days prior to the scheduled IPR. Upon receipt of the package, the head of each member agency will appoint a POC, a copy of the appointing correspondence will be provided to the IPR chairman within 7 calendar days after receipt of the IPR package, and information copies will be sent to all other IPR members and observers.

## NOTE

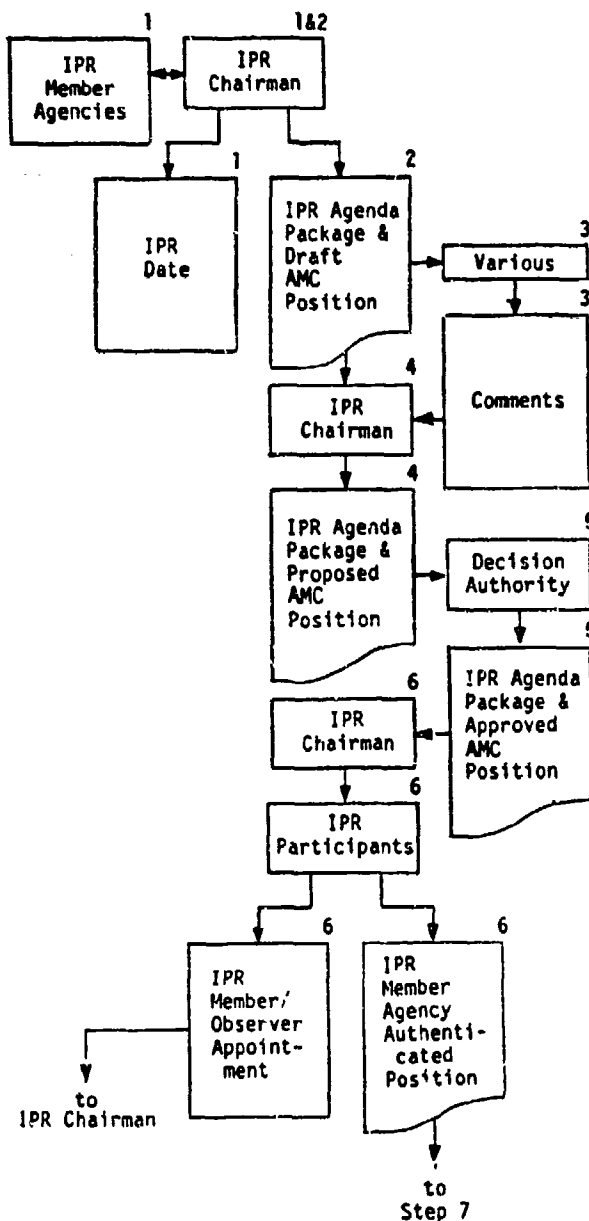
The TRADOC IPR position is established by the TMEC. Further explanation of the TMEC starts on page 15.31.



# MATERIEL ACQUISITION DECISION PROCESS (MADP) REVIEWS

15

## Process Outline



15.25

15.26

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## Process Outline

7. The IPR members' authenticated positions are provided to the IPR chairman and all other IPR members no later than 1 week before the IPR. The IPR is conducted by the IPR chairman with members and observers in attendance. TT/UT evaluators present independent TT and UT evaluations. During the IPR conference, all IPR members have full veto power which will, if executed, stop the acquisition process until conflicts are resolved. Unanimous agreement among members is required for the IPR decision to be executed.

## NOTE

When all members express an unconditional concurrence with the AMC position, as stated in the agenda package, the IPR chairman may cancel the IPR meeting and forward the statements of concurrence, by letter or memorandum, to the approval authority.

8. During the IPR, the IPR minutes including conclusions, recommendations and member agencies' positions are prepared by the IPR chairman.

## NOTE

When there is a nonconcurrence, the opposing positions are recorded in the IPR minutes. The MSC will make every effort to resolve the issue by direct negotiation with dissenting commands. If that fails, the minutes will be forwarded to HQ AMC (AMCDE-PA) for resolution by the WSSM and the Weapon System Management Team (WSMAT). The WSSM, in conjunction with the WSMAT, will attempt to resolve the nonconcurrence by direct negotiation with dissenting command headquarters. The issue will be raised to AMC/TRADOC/LEA/MTMC commander level, if necessary. The minutes will be forwarded to HQDA (DCSRDA) for issue resolution only if concurrence cannot be accomplished at AMC/TRADOC/LEA/MTMC commander level. When HQ AMC forwards the minutes to HQDA, the WSSM will document the issue and what has been done to resolve it, and include this information with the minutes.

15.27

## Process Outline

9. All IPR members sign the minutes prior to the conclusion of the IPR and copies are provided to members/before their departure. Copies will be provided to observers within 7 days after the IPR.

10. When all members concur, the IPR results (minutes and supporting documentation) are forwarded, within 2 workdays after the conclusion of the IPR, by letter of transmittal or memorandum signed by the IPR chairman to the approval authority. The approval authority ensures that a decision is announced to all participants via the SADM within 14 days after receipt of the transmittal letter/memorandum.

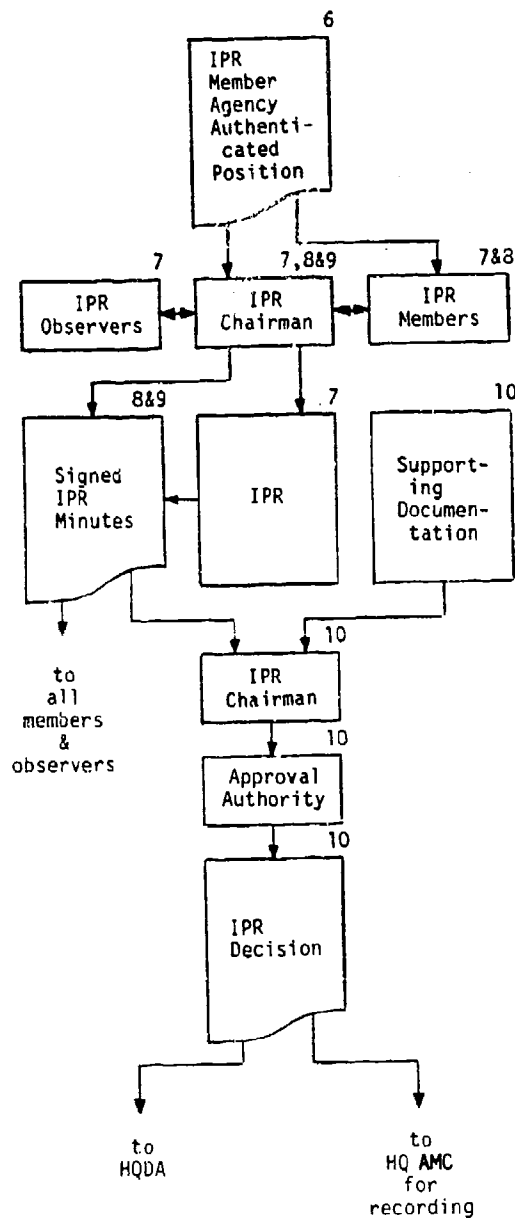
## NOTE

The IPR chairman will send the IPR results to the appropriate AMC decision authority and will send information copy of the IPR results to HQ TRADOC (ATCD-E) for a HQ AMC IPR, or to the appropriate TRADOC School/Center and HQ TRADOC (ATCD-E) for an MSC IPR. Within 7 days after receipt of the IPR results, the AMC approval authority will prepare the SADM and forward the package to the TRADOC decision authority by the fastest available means. In the event of nonconcurrence, TRADOC will notify AMC and make every attempt to resolve differences and approve a modified SADM as rapidly as possible. After joint approval, the IPR chairman will distribute the SADM as rapidly as possible. After joint approval, the IPR chairman will distribute the SADM and IPR results to IPR members and observers. The IPR chairman will also forward three copies of the approved SADM and IPR results for information to HQDA (DAMA) and one copy to Commander, Operational Test and Evaluation Agency (OTEA) within 5 days after the approval date. Approved IPR results are also forwarded to HQ AMC (AMCDE-PA) for recording, in accordance with AR 70-2.

# MATERIEL ACQUISITION DECISION PROCESS (MADP) REVIEWS

15

## Process Outline



15.29

## Chapter Guide

## TMEC

The TMEC is established to review all TRADOC IPR/ASARC milestone decision review positions (by examination of agenda packages), test waivers, and OT test issues and criteria.

TMEC reviews the following types of decisions:

- o Milestone I
- o Milestone I/II
- o Milestone III
- o Milestone I/III
- o Type Classification Decisions
- o Product Improvement Proposals
- o Other decisions as directed by the TMEC Chairman.

The TMEC Review will be done in one of three ways:

**15.30**

TMEC reviews DOD major programs, DAPs, and others programs as selected. Membership includes the DCG-Combined Arms, DCSCD, CDRTCATA, DCST, DCSDOC, and representative for CAC, LOGCEN, SSC.

TMEC reviews nonmajor systems before formal review. The TMEC is chaired by ADCSCD with LTC/COL representative from CAC, LOGCEN, SSC, DCST, DCSDOC, TIED, DCSCD (Dir SMD), DCSCD (Dir TED).

A Decision Paper is prepared for nonmajor items with low risk, extremely short suspense dates or when the IPR/ASARC schedule does not allow a meeting of TMEC. The Decision Paper is coordinated with the proper decision authority at DCSCD, CAC (Dir MID and Dir TIED), LOGCEN, SSC, DCST, DCSCD (Dir TED) DCSCD (Dir SMD) and DCSDOC.

### Procedure

The TMEC procedures are shown on the following pages in the form of descriptive paragraphs and facing page flow chart.

When appropriate, a "NOTE" is added at the end of the paragraph to highlight options to the action called for in the paragraph or to provide some other insight into the action described.

### Process Outline

1. The IPR Chairman sends the IPR agenda package and AMC position to the proponent TRADOC school, HQ TRADOC (ATCD-ET), and other TMEC members not later than 45 days prior to the IPR for review and preparation of recommendations on the IPR agenda package. (see page 15.35 for TRADOC addresses.) If the package is late or incomplete, requests for postponement of the IPR are appropriate.
2. The proponent TRADOC school sends out a draft TRADOC position, preferably in message form, not later than 5 days after receipt of the IPR agenda package. TMEC members, the DCSCD mission area directorate and other interested TRADOC schools have 10 days to review the draft TRADOC position and respond to the proponent TRADOC school in message form. Information copies of all replies are sent to HQ TRADOC (ATCD-ET), the DCSCD mission area directorate and other TMEC members.
3. The proponent TRADOC school resolves differences and reconciles comments and nonconcurrences, if possible, and prepares a coordinated proposed TRADOC position.
4. Not later than 20 days prior to the IPR, the proponent TRADOC School sends a second message containing the coordinated proposed TRADOC position showing concurrences and dissenting views. The message is sent to all TMEC members, with information copies to other interested TRADOC schools. The DCSCD mission area directorate makes a final review of the proposed TRADOC position and nonconcurrence comments, attempts to resolve differences, and prepares a "read ahead" or decision message.

**15.31**

## Process Outline

5. Not later than 14 days prior to the IPR or 7 days prior to a TMEC meeting, the DCSCD transmits the "read ahead" or decision message to the TMEC members with an information copy to the proponent TRADOC school showing alternatives and recommendations. TMEC members evaluate the final proposed TRADOC position and establish their individual positions, either concurrence or a recommended alternative.

6. If the TMEC meeting/review by correspondence does not result in a consensus, the TMEC chairman makes the final decision approving the TRADOC position or recommending approval to the CG TRADOC. CG TRADOC reviews all decisions on DOD major, DAP and other selected programs. After the TMEC, a message is sent to the IPR chairman stating the approved TRADOC position not later than 7 days prior to the scheduled IPR. A correspondence IPR is handled the same way, if unconditional concurrence with the AMC position is agreed to by TRADOC.

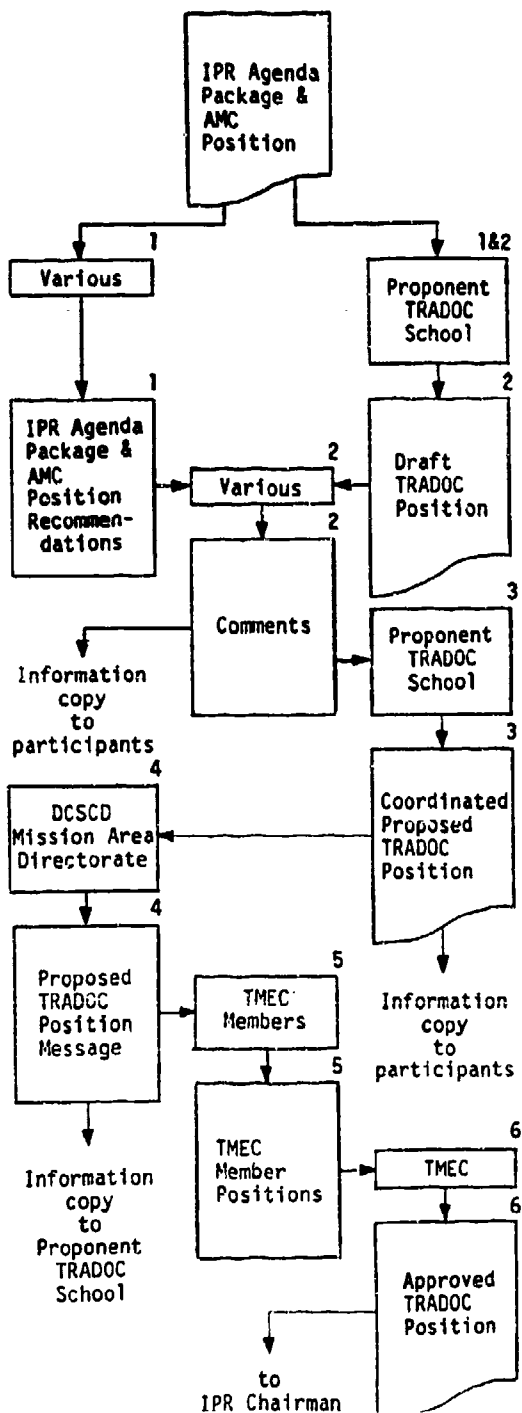
15.32

## NOTE

The TRADOC IPR voting member votes the TRADOC position unless information is presented which requires a change in the HQ TRADOC approved position. A copy of the IPR minutes are forwarded to HQ TRADOC (ATCD-ET) for distribution to the TMEC membership.



## Process Outline



15.33

## TRADOC Mailing List for IPR Packages

Number of Copies	Address
2	Commander U.S. Army Combined Arms Center Attn: ATZL-CAM-D and ATZL-TIE-O Ft. Leavenworth, KS 66027-5300
8	Commander U.S. Army Training and Doctrine Command Attn: ATCD-ET Ft. Monroe, VA 23651
1	Commander TRADOC Combined Arms Test Activity Attn: ATCT-CG Ft. Hood, TX 76544
1	Commander U.S. Army Logistics Center Attn: ATCL-M Ft. Lee, VA 23801-6000
1	Commander U.S. Army Soldier Support Center - National Capitol Region Attn: ATNC-NMM 200 Stovall Street Alexandria, VA 22332
1	Commander TRADOC Attn: ATTG-YP Ft. Monroe, VA 23651
1	TRADOC Proponent School and other interested TRADOC schools
1	Commander USA TSC Attn: ATIC-DM Ft Eustis, VA 23604-5166 (For TDR only)

15.34

**Chapter 16**

**PRODUCT IMPROVEMENT (PI) AND  
PREPLANNED PRODUCT IMPROVEMENT**

## Chapter Guide

### NOTE

This chapter has been divided into two parts. The first part covers Product Improvement (PI). The second part covers Preplanned Product Improvement (P3I), which begins on page 16.12.

A Product Improvement (PI) is a configuration change to an existing weapon system or piece of equipment in response to a user validated need. The improvement requires testing to assure that it accomplishes what is intended without jeopardy to any interfacing system and is installed as a modification kit in the field or during production if the weapon system is still in production. Since PI is the preferred method for satisfying materiel requirements, the desirability of making improvements to existing equipment rather than initiating new developments must be carefully weighed. Such improvements may be changes of an evolutionary nature to improve combat effectiveness and extend the useful life of the system/item or changes for safety, cost reduction, standardization, legislative compliance, energy conservation, deficiency correction or improvement of reliability, availability, and maintainability (RAM), health and safety.

The Product Improvement Proposal (PIP) and supporting documentation provide a visible audit trail, substantiate the need for the improvement, identify all of the resources required and provide the plan, including schedules and milestones, for developing and applying the modification or making changes during production. Through the required semi-annual Product Improvement Management Information Report (PRIMIR) updates, they constitute a viable management plan to accomplish timely fielding of the improvement.

An approved PIP will generate publication of a DA modification work order (DAMWO), a depot maintenance work requirement (DMWR) or other appropriate documents and will generate an engineering change to production packages (Technical Data Packages).

16.1

## Responsibilities

AMC: Recommend solutions to established PI requirements.  
Prepare, coordinate, and approve (within materiel proponent authority) PIPs.  
Prepare, coordinate, and approve the integrated logistic support package (ILSP).  
Prepare cost and economic analyses.  
Program and budget fiscal resources.  
Plan and schedule testing, procurement, and application.  
Execute the PI program.  
Initiate cancellation of a PIP.  
Terminate a PIP at the earliest possible time when it is no longer needed.  
Host and chair PIP Joint Reviews.  
Collect data to facilitate evaluation of the adequacy of a fielded PIP.  
Inform nations possessing equipment of proposed PI early in cycle. Request information on their PI efforts or interests in the proposed PI.  
Conduct semi-annual HQ AMC PIP MARB.

16.2

TRADOC: Review PIPs and initial PIP packages.  
Validate the need for PIPs and provide concurrence/non-concurrence to the materiel developer.  
Attach priorities to approved PIPs.  
Initiate cancellation of a PIP when no longer needed.  
Participate in PIP Joint Reviews.  
Recommend improvements to materiel which have a direct objective of improved combat effectiveness in the mission environment.  
Determine whether the proposed modification requires a requirements document or a change to an existing approved requirements document, in accordance with AR 71-9 and AR 70-15. If one is required, prepare and conduct an appropriate COEA.  
Test PIP, is user testing is required.  
Determine logistics, personnel, and training implications.

## Chapter Proponent Offices

AMC: AMCDE-PIP

TRADOC: ATCD-EP

## References

The following documents direct or influence the procedures used for PIP preparation, coordination, review, approval, management, and execution.

DOD: DODD 5000.1  
DODI 5000.21

DA: AR 70-1  
AR 70-15  
AR 70-37  
AR 37-100  
AR 750-10  
AR 750-37

AMC: DARCOM-R 37-4  
Supplement to AR 70-15  
Supplement to AR 750-10  
Letter of Instruction of the Product Improvement  
Program, 20 Dec 84

TRADOC: TRADOC-R 70-15

Also see the following chapters in this handbook:

Chapter 2 - Long-Range RDA Plan  
5 - Required Operational Capability  
15 - Materiel Acquisition Decision Process Reviews

## Time Constraints

Accommodating the Planning, Programing, Budgeting, and Execution System (PPBES) cycle to avoid reprogramming is a major time constraint on preparation of a PIP. Specific time constraints are identified in AR 70-15.

### Procedure

Detailed procedures for proposing, validating, coordinating, reviewing, approving, executing, and reporting a PI are described on the following pages in the form of descriptive paragraphs on the left-hand page and corresponding flow charts on the facing page.

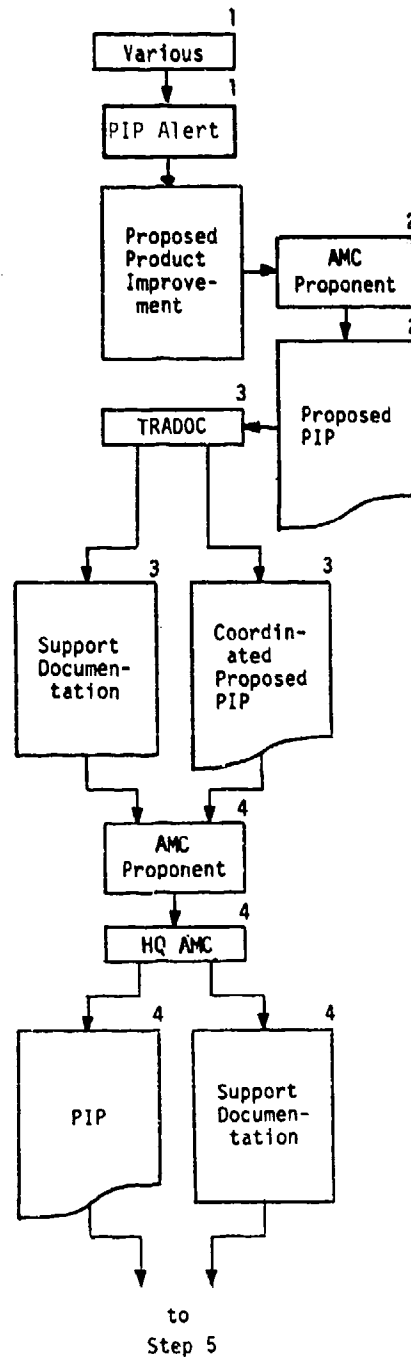
When appropriate, a "NOTE" is added to highlight options to the action called for in a paragraph or to provide some other insight into the action described.

### Process Outline

#### 16.4

1. Anyone can propose a PI; however, the proponent TRADOC school is responsible for validating problems and situations. AMC is responsible for urgent and limited urgent actions as outlined in AR 70-15 and AR 750-10. TRADOC validates the need for those PIPs which change the performance envelope, determines the need to prepare a requirements document, or a change to an existing document.
2. The AMC proponent must prepare a PIP Alert for every new and late start PIP. The Alert, a one-page document which provides essential information on a PIP, is staffed through HQDA, AMC, TRADOC, and the Army Safety Center. If approved, a PRIMER and all supporting documentation is then prepared by the PIP proponent for processing.
3. The AMC proponent prepares a PIP based on TRADOC's or other agency's identified problem and after evaluation of all alternatives, including development of a successor system/item.

Process Outline



16.5



## Process Outline

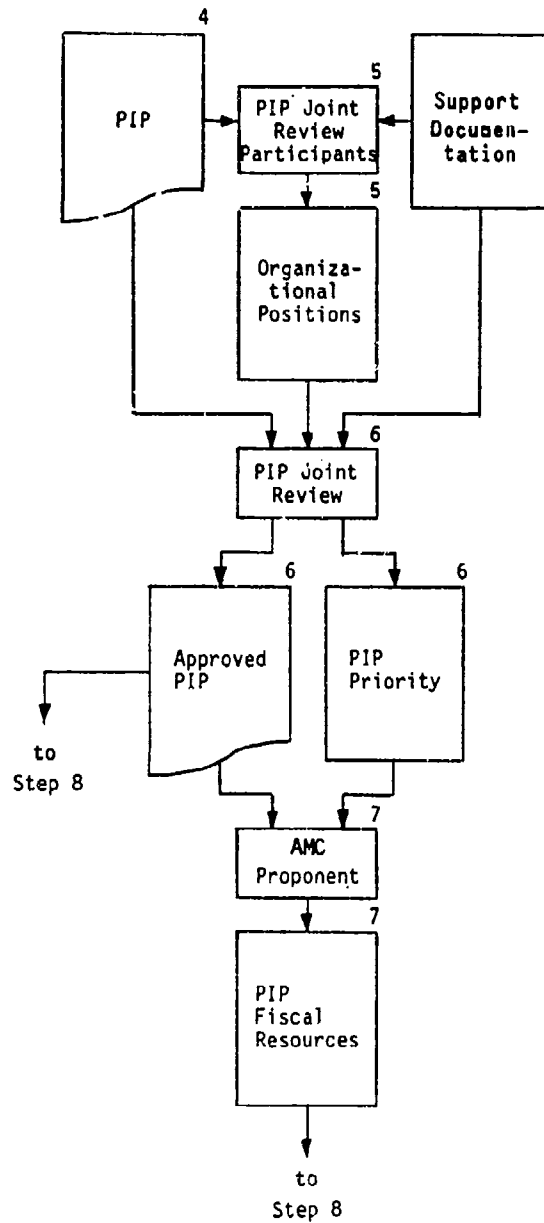
4. The initial PIP package (AR 70-15) is coordinated with TRADOC (AMC proponent sends it directly to the proponent TRADOC school which, after processing the document at that level, forwards it through the appropriate TRADOC Integrating Center to HQ TRADOC for final TRADOC approval). If the PIP is to be considered by the semi-annual materiel change review (DCSOPS, DCSRDA, DCSLOG, TRADOC, AMC participate), this coordination must be initiated at least 45 days before the joint review. Included in the coordination is a determination whether there is in existence or under development a system/item equal to or better than the PIP. As a result of the coordination, the proponent TRADOC school supports or rejects the PIP and, if appropriate, prepares the requirements document for the PIP and the Procurement Quality Assurance (PQA)/COEA.

## NOTE

16.6 If the proponent TRADOC school determines that the PIP requires a new Line Item Number (LIN) and a new/changed requirements document (ROC/TDR), it is prepared and processed in accordance with AR 71-9. The primary factor dictating the need for a new/changed requirements document is whether or not the proposed improvement changes the then current performance envelope. The PIP is coordinated with MACOMs, other Services, and other commands/agencies, as appropriate. Included in this coordination is the determination of need for operational test (OT). The user, normally TRADOC, will determine the need for user testing (UT), including OT. TRADOC also determines UT significance. The Operational Test and Evaluation Agency (OTEA) may require an OT, and will scope the OT, estimate its cost and designate the operational tester if a full OT is required.

5. After coordination with the proponent TRADOC school, the AMC proponent provides PIPs to HQ AMC (AMCDE-PIP) for reproduction, distribution, staffing, and consideration at the next PIP Joint Review. Each PIP must be fully justified with supporting documentation in accordance with AR 70-15 and PIP Letter of Instruction. All information on which approval is to be based must be included, especially an economic analysis.

## Process Outline



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## Process Outline

6. A PIP review package, prepared in accordance with AR 70-15, is provided by HQ AMC to the primary participants 30 days prior to the PIP Joint Review. In addition, copies of the PIP review package are provided directly to the TRADOC proponent schools, Integrating Centers, AMSAA, and TECOM 45 days prior to the joint review. The purpose of this distribution is to allow each review participant to formulate a staff position on the PIP.

7. HQ AMC (AMCDE-PIP) hosts and serves as the secretariat for the PIP Joint Reviews. The joint review makes appropriate recommendations concerning PIP approval/disapproval. HQ TRADOC (ATCD-EP) and ODCSOPS (DAMO-FDR) priority lists provide guidance to help resolve resource allocation problems.

## NOTES

AMC is delegated PIP approval authority provided the projected resource requirements for one PIP or a combination of PIPs on one system/item are below the following upper thresholds of the combined costs of RDTE, procurement, operations and maintenance and Stock Fund appropriations.

System/item in or scheduled for production: \$5 million and 1 year or \$25 million over 5 years (current year dollars).

System/item out of production: \$2 million any 1 year or \$10 million over 5 years (current year dollars).

For all other PIPs, approval authority is retained at DA unless the PIP constitutes a DOD major program, in which case approval authority rests with the SECDEF.

PIP approval does not guarantee resource allocation. It merely allows the PIP to compete with all other candidates for funding each year in the budget preparation, review, and approval process.

Any nation having equipment for which a PI is proposed will be notified of any changes to the equipment as a result of the PI.

## Process Outline

8. Once a PIP is approved, the AMC proponent coordinates the fiscal resource requirements among the various appropriations to assure continuing visibility, timely availability, and identification of sources and accomplishing reprogramming, if necessary. The AMC proponent is also responsible for providing and preserving documentation of an audit trail for the PIP and preparing the ILSP.

9. Once fiscal resources are made available, design and prototyping (as required) of the PIP are accomplished by the design agent (either industry or AMC). Design effort normally culminates in engineering change proposals (ECPs).

10. After testing of the prototype, the AMC proponent assures that the results of an independent evaluation report (IER) on the test data are coordinated with various PIP participants. The IER is usually prepared by TECOM or AMSAA.

## NOTE

When multiple PIs are involved, specified tests will be conducted with all product improvements installed on the prototype.

16.10

11. At the Milestone III (production) IPR, the IER on test data and the production readiness assessment form the basis for the decision to proceed with PI production. ILS/P3I status will also be assessed.

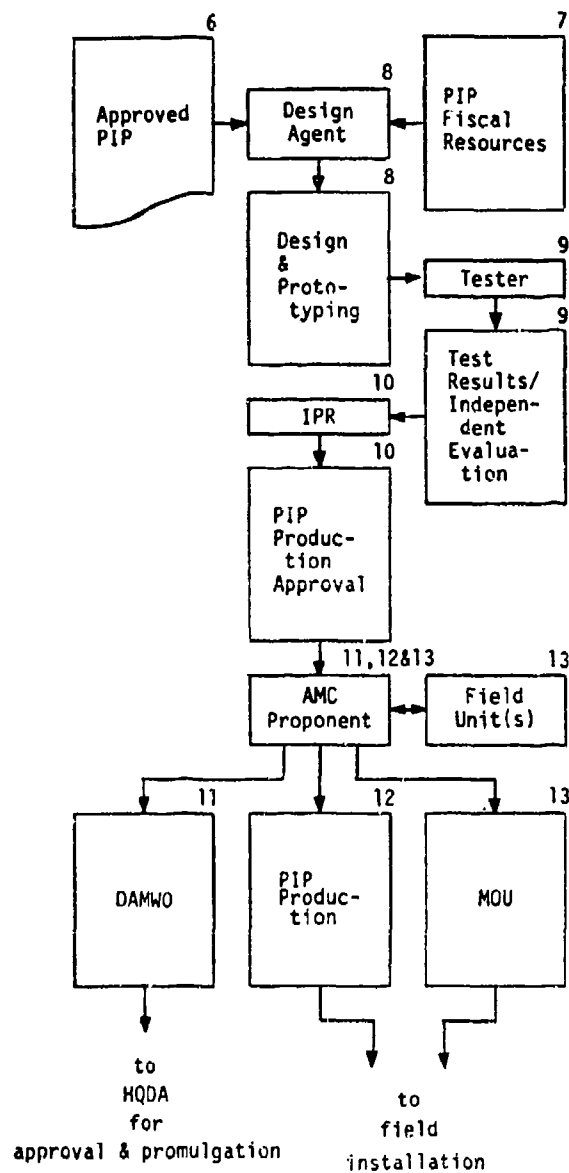
12. An affirmative production decision results in the preparation, by the AMC proponent, of a DAMWO, DMWR, or Engineering Change Request (ECR). DAMWOs are forwarded directly to DA for approval and promulgation.

13. Once the DAMWO is approved, the AMC proponent authorizes the producer (either AMC or industry) to proceed with the PI kit production. Production approval may, in some cases, precede DAMWO approval.

14. The AMC proponent also negotiates with the unit(s) in the field possessing the equipment, a memorandum of understanding (MOU) for the accomplishment of the modification. The AMC proponent has ultimate responsibility for the satisfactory installation of the modification kits on the Army's inventory including equipment in the hands of the troops. These kits can be applied by a Government contractor at a Government, private facility, field unit, by a depot team at the depot or in the field, or the kits can be applied by field units. Following installation, AMC insures that data on the performance of the improvement are collected.

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## Process Outline



16.11

## Chapter Guide

Preplanned Product Improvement (P3I) is an acquisition strategy (AS) that can be extremely useful in reducing costs and extending the useful life of a system. This is an extremely complex strategy which must be fully understood to be properly applied. This concept offers an alternative AS which minimizes technological risk and speeds the delivery of a basic system to the user. There are specific elements which make up effective P3I, each of these elements must be present and effectively managed or the strategy will cause both cost and schedule overruns. The specific elements are as follows:

## Requirements Documentation

This is the key element of effective evolutionary development, it must be clearly understood that without this element a P3I strategy will fail. The requirements generation process that results in a P3I effort is no different from any other program. The difference begins with the development of an O&O Plan and the ROC. The documents will spell out the intent to field a basic system and then incrementally upgrade it over time. The specific incremental improvement must be known and stated in the requirements documentation prior to proceeding with the program. As an example, "25 kilometer range required in initial system, 40 kilometer range required not later than 5 years after IOC."

## NOTE

When the basis for upgraded requirement is not known or is not stated in the requirements document, P3I will not work and should not be used.

The requirements generation process will dictate the 40 kilometer range requirement, the 25 kilometer initial requirement will be an agreed-to tradeoff to speed the development of an initial system. These tradeoffs will surface during the "requirements scrub" process and should be sought only when the near term system will be effective against a near term threat.

### Parallel Development

Once a reduced near term requirement is agreed to by TRADOC, AMC, and HQDA, parallel development of the deferred requirements MUST BEGIN IMMEDIATELY. The parallel effort must be funded and managed through the basic system effort. Failure to properly pursue development of the deferred capability, in parallel with the basic system, will result in a near term system that is not improved when the improvement is required. Thus, if parallel development is not approved or not funded, then the P3I strategy should NOT be used and development of the full capability system should be undertaken from the beginning.

### Growth Provisions

Growth provisions must be applied to both the basic system development and the parallel effort. This is done to accommodate retrofit of the deferred capability to the basic system. Standardized interfaces should be considered as essential to successful incremental upgrading under the P3I acquisition strategy.

### Continued Improvement

The strategy of P3I extends past the initial improvement. The concept envisions the incremental upgrading of a system throughout its life. Thus, when the initial upgrade is ready for application to the basic system, revision of the requirements document, specifying the second improvement, should be nearing completion. This can be done because the second improvement which could not be envisioned during preparation of the initial requirement is now closer at hand and normally can now be specified. Thus, growth provisions for the second upgrade, when applicable, can be applied along with the application of the first improvement increment. This cycle is repeated until basic system design constraints preclude cost effective evolution of the system.

### Funding

The initial cost of systems with P3I will normally be higher than traditional systems because more upfront costs are visible, (see AR 70-1 chapter 6.)

If the system is in production, retrofit of fielded hardware that upgrades it to the current block configuration, if deemed cost effective, will be funded without going through a separate PIP process for approval. Thus, approved P3I is a preapproved PIP when it can be applied during production.



### Objectives

The basic objectives of P3I are--

- a. Shorten the acquisition and development time for systems.
- b. Extend the useful military life of systems.
- c. Reduce technical, cost, and schedule risk.
- d. Reduce the requirement for new starts.

### Program Documentation

There is no separate procedure for the processing of P3I documentation. P3I is processed as part of the system documentation and the specifics of the strategy must be included, as required, in all program documentation.

16.14

## **Chapter 17**

### **NONDEVELOPMENTAL ITEMS (NDI)**

# I. INTRODUCTION

## A. WHAT IS A NONDEVELOPMENTAL ITEM?

1. Nondevelopmental Item (NDI) is a generic term that covers materiel available from a variety of sources with little or no development effort by the Army. NDIs are normally selected from-

a. Commercial sources (may require ruggedization or militarization).

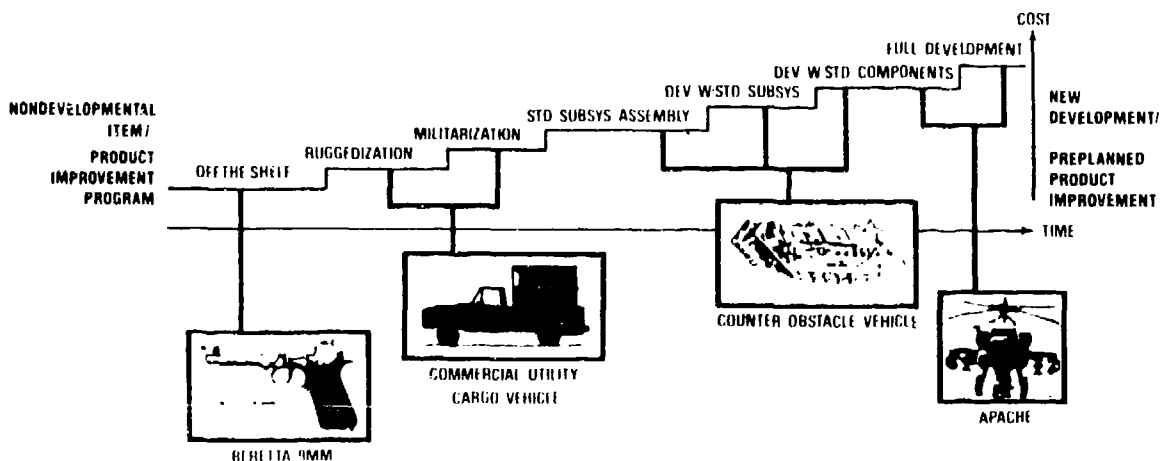
b. Materiel developed and in use by other United States military services or Government agencies.

c. Materiel developed and in use by other countries.

2. As shown in figure below, the acquisition strategies (ASs) available to satisfy requirements cover a full spectrum from traditional full development, to classic "off-the-shelf" NDI. Between the two extremes are "tailored" ASs employing a varying degree of NDI. The bottom line is that the Army prefers to buy systems already designed, developed, tested, and in production; or, at least, where principal components are in production as opposed to initiating a new development program. Your responsibility is to select the optimum point on this spectrum to successfully satisfy requirements in the shortest time with minimum resources.

17.1

## THE ACQUISITION SPECTRUM



3. This handbook focuses on the following categories of NDI:

a. Category A - off-the-shelf items (commercial, foreign, other services) to be used in the same environment for which the items were designed. Research and development (R&D) funds are not required to develop or modify hardware or operational software.

b. Category B - off-the-shelf items (commercial, foreign, other services) to be used in an environment different than that for which the items were designed. Item may require modification to hardware or operational software.

c. There is a third level of NDI effort. This approach emphasizes integration of existing componentry and the essential engineering effort to accomplish systems integration. The Heavy Expanded Mobility Tactical Truck (HEMTT) is a good example of this type NDI effort. The strategy requires a dedicated R&D effort to integrate existing proven components into a system configuration, to develop or modify software, and to ensure that the total system meets requirements.

#### B. NDI BENEFITS AND CHALLENGES.

1. NDI offers three major benefits:

a. Time to fielding is greatly reduced. Quick response to user needs is provided.

b. R&D costs are reduced.

c. State-of-the-art technology can be used to satisfy the user need.

2. NDI also presents certain challenges as follows:

a. Based on the information gained in the Market Investigation (MI) and after careful evaluation, tradeoffs may be required. The tradeoffs will be reflected in the requirements document.

b. Essential Integrated Logistic Support (ILS) activities normally accomplished in preproduction phases have to be accelerated and may require increased up-front funding. The standard Army logistics system may be supplemented by interim contractor support (ICS) or other innovative logistic strategies. The impact of the innovative logistic strategies upon operations in a combat environment must be considered and addressed in the requirements document.

c. Contracting strategies must be employed which ensure effective management of hardware and software changes and minimize logistic support, training, and configuration management implications.

d. Safety deficiencies may need to be evaluated to determine whether or not they pose an acceptable risk. Procedural safeguards may have to be considered as an alternative to hardware redesign. See U.S. Army Armament Research and Development Center Technical Report "System Safety Procedures for Nondevelopment Item (NDI) Acquisitions," dated May 86 (available through HQ AMC, AMCSF-E).

e. Because of the shorter NDI acquisition cycle, internal Army supporting processes (e.g., Basis of Issue Plan (BOIP), Department of Master Priority List (DAMPL), Basis of Issue (BOI), Table of Organization and Equipment (TOE) authorization process, provisioning, materiel fielding planning, etc.) must be expedited or tailored to support the NDI strategy.

#### C. CONSIDERATIONS FOR SELECTING NDI.

17.3

1. Requirements Documents. NDI must satisfy the requirements document. AMC, as the materiel developer (MATDEV), enters into a cooperative partnership relationship with TRADOC, as the combat developer (CBTDEV), to accomplish an iterative requirements generation process resulting in an approved requirements document at the initial milestone decision review, i.e., Milestone I/II for NDI category B and Milestone I/III for NDI category A.

2. Life-cycle cost (LCC). With NDI, the Army expects to field a product faster and cheaper by possibly re-evaluating and re-adjusting user requirements against available marketplace products and, possibly, a longer interim contractor support period. We must evaluate the total LCC for NDI alternatives, consider risk and cost tradeoffs, and then select the alternative that has the lowest projected LCC within acceptable risks while still meeting user requirements.

3. Operation and support in mission environment. NDI presents special ILS problems because many leadtimes associated with developing elements of organic support exceed the time required to acquire and field NDI. To compensate for this, the Army may choose to rely on contractor support either on an interim or permanent basis. This decision should be based on a careful consideration of the risks and costs inherent to this support in relation to the intended use of the equipment.

4. Availability of the product and its support items for purchase throughout the planned life cycle. The MI must assess manufacturer history, production capability, and ability to sustain support over the intended life cycle of the product. We may choose a one-time buy of spares to ensure support of the product over the entire life cycle.

5. Safety and Environment. NDI may present special safety and environmental problems due to the possible lack of compliance with normally accepted Army safety and environmental standards. In cases where Army standards are not met, a decision must be made at each milestone decision review as to whether or not the increased risk is acceptable.

6. Manpower and Personnel Integration (MANPRINT). MANPRINT is the integration of human factors, manpower, personnel, training, health hazard assessments, and system safety considerations into the entire materiel acquisition process. NDI is not exempt from MANPRINT. In fact, NDI requires extra MANPRINT effort. In early Proof of Principle-MI activities, MANPRINT is a major consideration in determining whether an NDI can be fielded by the Army in a strict commercial or off-the-shelf configuration, whether a degree of modification is required, or whether there is no viable NDI solution at all. NDI advantages are manifest, but they can't overcome the basic requirement to acquire equipment that can be fielded with minimum qualitative and quantitative impact on the Army personnel inventory and training base.

7. Nuclear, biological, and chemical (NBC) survivability requirements.

a. If an item is electrical or electronic in nature, NBC survivability requirements are critical in making a decision to buy NDI. Electrical items require protection against high and low electromagnetic pulse (EMP) damage. This applies to all items, even those in depot reserve, since EMP has such far-reaching effects. Additionally, if radiation hardness is specified, it must be included in the initial development of print circuit boards; to attempt to modify these boards later generally requires a total redesign of the board and possibly the entire system.

b. From an NBC survivability standpoint, if the materiel used in the item is vulnerable to the effects of either contaminants or decontaminating agents or if the item is not operable by soldiers wearing NBC protective gear, the equipment may not be suitable for use on the battlefield.

8. Threat consideration. If an item is to be used in a combat zone, consideration must be given to the threat to which the item may be exposed. The manager for the NDI project will task his MSC DCSI or equivalent intelligence office to develop this threat assessment.

## II. AMC AND TRADOC ROLES IN NDI ACQUISITION.

NDI acquisition requires considerable interaction between AMC and TRADOC. From the onset, a number of plans and actions are key to the NDI process.

### A. AMC ROLE

AMC, as MATDEV, is responsible for testing, evaluating, selecting, procuring, fielding, and sustaining a system. For NDI acquisitions, AMC provides TRADOC with MI data. TRADOC uses the data to evaluate the effectiveness and suitability of NDI. Then AMC and TRADOC conduct an iterative process comparing the requirements in the requirements document to the products available in the commercial market. From this comparison, TRADOC may accept tradeoffs allowing an NDI solution that would not satisfy the initial requirements document. The ultimate goal of the iterative requirement review is an approved requirements document which-- (1) satisfies the user's requirements and (2) provides sufficient flexibility for use of NDI to satisfy the requirement. Once the decision is made to use NDI to satisfy the requirements document, AMC develops the AS and provides the follow-through to place the product into the user's hands. Throughout the materiel acquisition process, the AMC commodity-oriented MSC works closely with TRADOC, the logistician, and the test community to ensure that the NDI satisfies the requirements document and is supportable in the field.

**17.5**

### B. AMC NDI RESPONSIBILITIES.

1. Assists TRADOC in preparation of requirements documents. Ensures threat statement is contained in requirements documents.
2. Performs MI of NDI alternatives, both domestic and foreign. (See appendix B for United States Army Security Affairs Command (USASAC) input to foreign MIs.) All NDI project managers will consider foreign technology in their preparation for MI. The MSC DCSI or equivalent intelligence office will be tasked to provide information concerning foreign technology in the NDI area being researched.
3. Performs the ILS and MANPRINT effort for the NDI.

4. Provides procurement, cost, and specification data for the solicitation.
5. Recommends the NDI acquisition approach as the best method to meet user requirements for selection and type classification (TC).
6. Prepares BOIP Feeder Data (BOIPFD) and Qualitative and Quantitative Personnel Requirements Information (QQPRI).
7. Ensures an acceptable level of safety for the NDI.
8. Acquires, fields, and supports the NDI.
9. Assigns the Technical Independent Evaluator (Test and Evaluation Command (TECOM) or US Army Materiel Systems Analysis Activity (AMSAA) for each NDI project.
10. Prepares a Technical Independent Evaluation Plan (IEP), conducts an independent evaluation, and presents an Independent Evaluation Report (IER) at each milestone decision review.
11. Uses the research, development, test and evaluation (RDTE) appropriation to fund any activity listed above including that described in paragraph V.E. which leads to NDI product selection and TC or decision that NDI will not satisfy the user requirement.

**17.6****C. TRADOC ROLE**

TRADOC, as CBTDEV, formulates concepts, doctrine, organization, materiel objectives, and requirements for employment of Army forces. During the materiel acquisition process, TRADOC represents the soldier in the field and is responsible for preparing requirements documents. TRADOC ensures requirements documents are not overly restrictive and contain only essential user requirements. TRADOC must work closely with AMC in developing requirements documents, obtaining MI data, comparing that data with requirements, and refining requirements. TRADOC, jointly with AMC, establishes the issues (e.g., cost, schedule, performance, supportability, other) which must be considered in the MI. If subsequent testing is required, TRADOC, in coordination with AMC, determines the critical operational test issues.



## D. TRADOC NDI RESPONSIBILITIES.

1. Prepares requirements documents in coordination with AMC. Initially develops the Operational and Organizational (O&O) Plan and, through an iterative coordination effort with AMC, generates the appropriate requirements document (i.e., Required Operational Capability (ROC), Training Device Requirements (TDR), Commercial Training Requirement (CTDR), and the System MANPRINT Management Plan (SMMP)).

2. Conducts analyses and test (e.g., Force Development Test and Evaluation (FDTE)) needed to define operational requirements and support constraints.

3. When designated, operational tester and evaluator establish operational test and evaluation issues and criteria, participates in the MI, and prepares an operational evaluation report for each milestone decision review.

4. Participates in selection of NDI AS.

5. Assesses and contributes to the ILS planning and evaluation, MANPRINT, implementation, procurement data, selection, procurement, and production/deployment of NDI. This includes stating the minimum level of organic support required at initial fielding and intended useful life of the item.

6. Develops the BOIP and staffs along with QQPRI.

7. Modifies existing training programs of instruction (POI) or develops new POIs, as required, to support introduction of the NDI to the inventory.

## III. OVERVIEW OF NDI ACQUISITION PROCESS.

An overview of the NDI acquisition process is described on the following pages. A flowchart of the process for both NDI category A and NDI category B is provided at figure II-1 and II-2, respectively. (Pages 17.7A and 17.7B.)

## A. REQUIREMENTS/TECHNOLOGY BASE ACTIVITIES AND PROOF OF PRINCIPLE PHASES.

1. The NDI acquisition process starts like any other program with establishment of a requirements document by TRADOC in the form of an O&O Plan. The O&O Plan and subsequent requirements documents must contain a realistic statement of the threat.

## OVERVIEW OF NDI ACQUISITION PROCESS (CATEGORY A)

### REQUIREMENTS/TECHNOLOGY BASE ACTIVITIES-PROOF OF PRINCIPLE PHASE

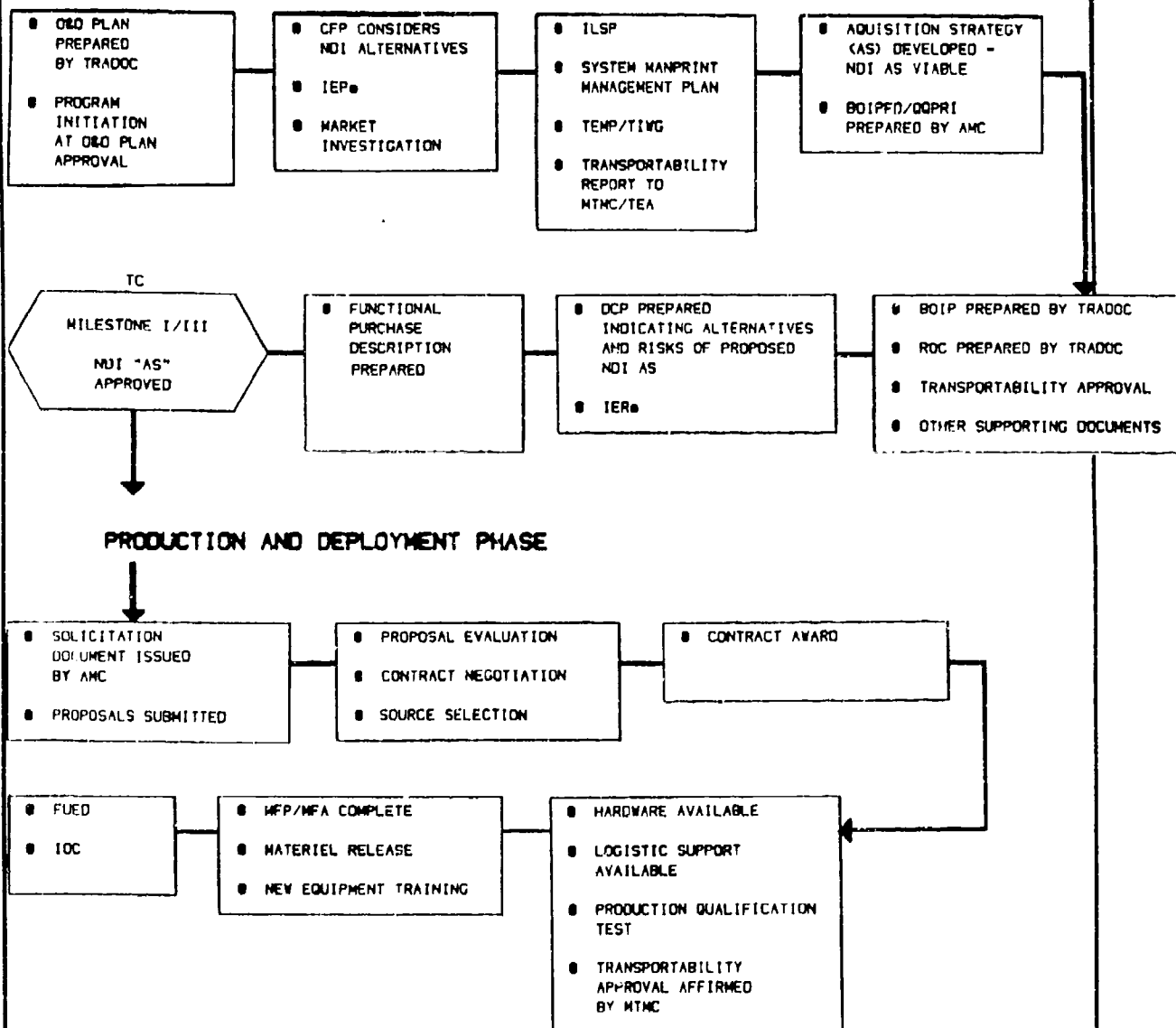
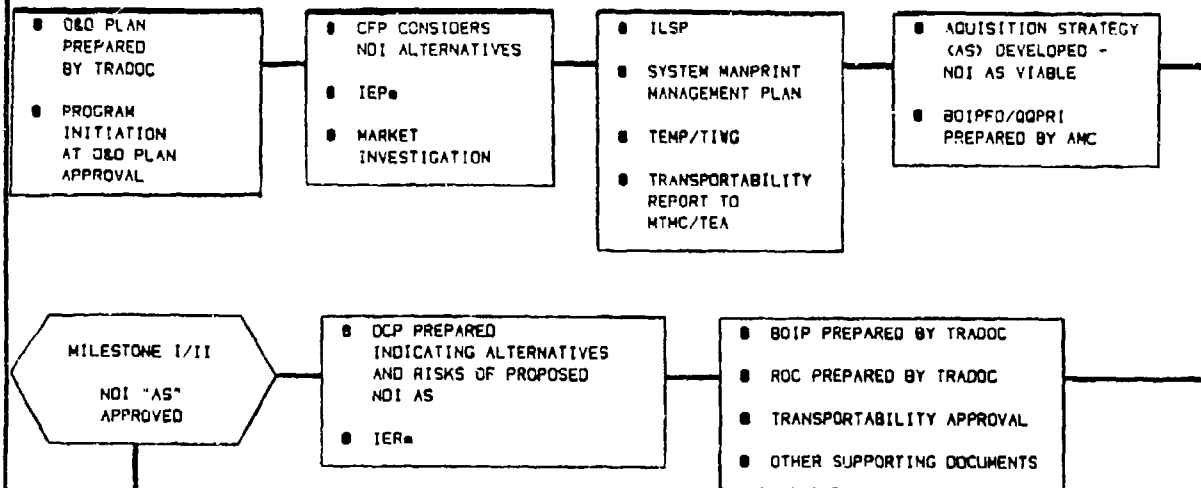


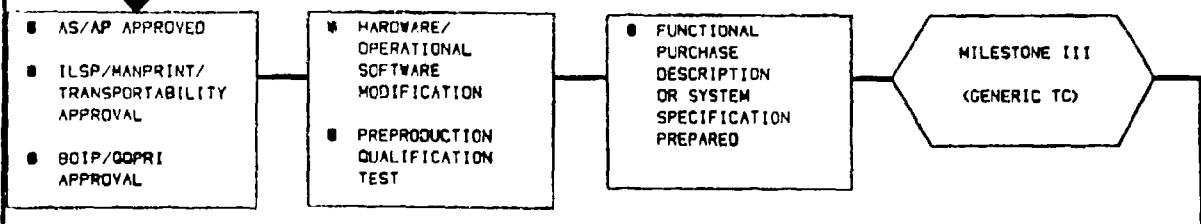
FIGURE II -1

# OVERVIEW OF NDI ACQUISITION PROCESS (CATEGORY B)

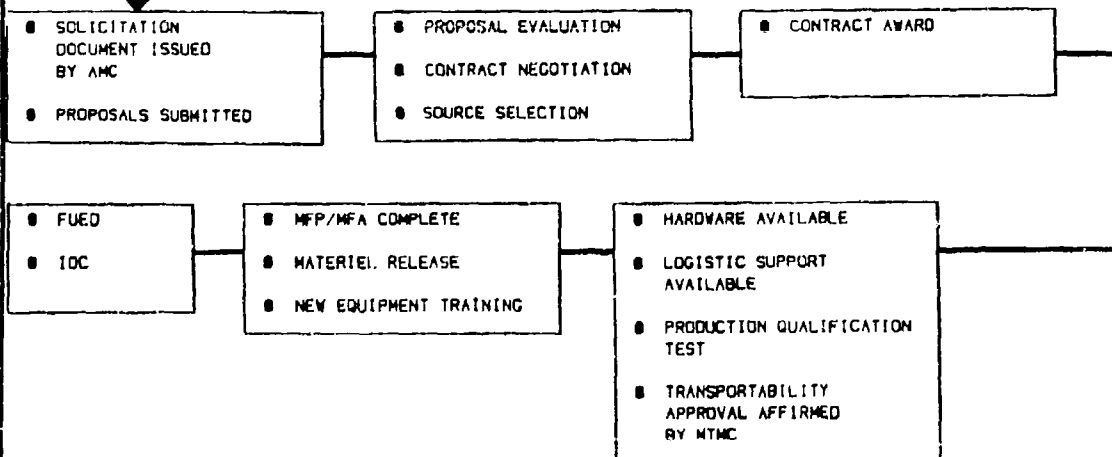
## REQUIREMENTS/TECHNOLOGY BASE ACTIVITIES-PROOF OF PRINCIPLE PHASE



## DEVELOPMENT/PRODUCTION PROVE OUT



## PRODUCTION AND DEPLOYMENT



17.7B

FIGURE II -2

2. NDI feasibility surfaces during the normal requirements generation process. TRADOC establishes those operational requirements representing essential user needs. AMC assesses technical feasibility. Integral to this assessment is a preliminary determination that NDI is, or is not, a viable option based on knowledge gained through market surveillance activities.

3. Prior to the initial milestone decision review, the independent evaluators prepare IEPs which address issues and identify data requirements/sources in stating the approach for the independent evaluation. The AMC commodity-oriented MSC conducts the MI with support from HQ USASAC, ATTN: AMSAC-MI/T, along with its International Materiel Evaluation (IME) component co-located at TECOM for foreign items, and coordinates with the independent evaluators, testers, TRADOC, and logistician in its execution.

4. The MI, for both domestic and foreign, is initiated by the AMC commodity-oriented MSC, is based on the O&O Plan, and has the objective of determining the viability of the NDI acquisition approach. It is tailored to the needs of the proposed acquisition and involves interaction between the AMC commodity-oriented MSC, independent evaluators, testers, CRTDEV, and logistician. The IERs, prepared by the independent evaluators, should be completed to support each milestone decision review.

5. The IEPs are plans to conduct the independent evaluations which culminate in the IERs. The critical issues listed in the IEPs will be addressed by the AMC commodity-oriented MSC while conducting the MI. The IERs are adjunct reports to the AMC commodity-oriented MSC's report of the MI and are prepared in support of the initial milestone decision review (i.e., Milestone I/III for NDI category A and Milestone I/II for NDI category B).

6. A Research, Development, Test and Evaluation (RDTE) funded project will be established by AMC during this timeframe to pay any cost generated by AMC in preparing the technical IEP or rationale in lieu thereof, conducting the MI, preparing the technical IER, testing/evaluating/integrating NDI candidates, ILS, MANPRINT, etc. (see paragraph, V.E. page 17.40)

7. If results of the MI indicate that an NDI solution is feasible, the AMC commodity-oriented MSC initiates development of an NDI AS. This includes the decision to do one of the following:

- a. Proceeding directly to a combined Milestone I/III decision review which make the production and TC decision.

b. Proceeding to a Milestone I/II decision review and initiating a Development Proveout Phase to conduct a test and evaluation of NDI candidates to determine if requirements are fully satisfied. The Development Proveout Phase (including lease/purchase/loan of those NDI candidates and support materiel needed for test, evaluation, or integration purposes) will be funded with RDTE funds as described in paragraph V.E. page 17.40.. The extent of any required modification is one of several factors used to decide if and how much operational testing is necessary.

8. The NDI decision is made at the initial milestone decision review, i.e., Milestone I/II for NDI category B and Milestone I/III for NDI category A. Essential elements in preparation for the review are--

a. A Decision Coordinating Paper (DCP), containing a comprehensive AS, identifying the NDI approach and establishing the baseline for all supporting functional areas (AMC). (see AR 70-1 for DCP and AS policy and format.)

b. Requirements documents (ROC, TDR, CTDR). (TRADOC in coordination with AMC.) (See AR 71-9.)

c. User's statement of the minimal level of support, including computer software support required at initial fielding (TRADOC). (see AR 700-127.)

d. BOIPFD/QQPRI (AMC), BOIP, and staffing of QQPRI for submission with requirements document (TRADOC). (see AR 71-2.)

e. Initial ILS Plan (ILSP) (AMC). (see 700-127 and DA Pam 700-55.)

f. Transportability report (AMC). (see AR 70-44.)

g. Transportability approval (MTMC). (see AR 70-44.)

h. NDI test and evaluation strategy. To minimize testing, maximum use should be made of existing data sources (e.g., commercial testing, user data, and independent evaluation agencies). AMC establishes the Test Integration Working Group (TIWG) to develop the Test and Evaluation Master Plan (TEMP) (see DODD 5000.3 for format) and T&E portions of the AS, solicitation document, and supporting documentation. Early involvement by the TIWG optimizes the use of existing test data (e.g., commercial/user data, Technical Feasibility Testing (TFT), and component testing) to satisfy subsequent testing requirements and contribute to the test portions of the AS. The TEMP and AS are approved at the initial milestone decision review. These documents are dynamic and will be updated as the process continues.

i. Preparation of Safety and Health Data Sheet (AMC). (See AR 70-61, AR 385-16.)

j. Product Quality Management (PQM) Plan (AMC). (See DARCOM-R 702-6, appendix A.)

k. Training Plans (AMC and TRADOC). (See AR 350-35.)

l. SMMP (TRADOC). (See AR 602-2.)

9. The program decision authority conducts the initial milestone review, i.e., Milestone I/II for NDI category B or Milestone I/III for NDI category A, using the above documents to support approval of the NDI strategy. The level of program decision authority is determined by the type of program (See AR 70-1 for decision authority criteria). The initial milestone decision review--

a. Determines capability of marketplace to provide an item for the military.

b. Approves NDI AS.

c. Approves issues to be evaluated and authorizes subsequent testing through TEMP approval.

B. DEVELOPMENT PROVEOUT PHASE (when called for by the AS).

1. Once an NDI solution is authorized, the AMC commodity-oriented MSC, as necessary, updates the Acquisition Plan (AP) to support contracting efforts. There are many contracting options available. The AP outlines and justifies the selected option. A generalized approach to contracting strategy is described below. Additionally, the ILSP is updated with consideration for special factors relating to the approved accelerated acquisition program and transportability approval is reaffirmed.

2. After the AP and ILSP have been approved, the AMC commodity-oriented MSC, in conjunction with TRADOC, prepares a formal specification or Functional Purchase Description for the solicitation. These documents describe the military requirements to industry.

3. At this point, AMC conducts a final milestone decision review (Milestone III) prior to the release of the solicitation document to ensure all is in order. The Milestone III decision--

a. Approves the AS to support the Production and Deployment Phase.

b. Approves and type classifies the item. TC is an integral part of the Milestone III decision review. It is employed by the Army to implement the Office of the Secretary of Defense (OSD) requirement that an item must be determined "acceptable for service use" and is supportable prior to expending any procurement funds. AR 70-61 (paragraph 2-3g(2)) requires that all NDI be type classified unless specifically exempted. If approved, the decision authority issues a System Acquisition Decision Memorandum (SADM) revalidating the AS and releasing the solicitation document.

c. If a particular NDI has been accepted for the operational mission intended, is supportable in its intended environment, possesses a complete technical data package (including ILS and maintenance support), and is acceptable for introduction into the Army inventory, the NDI may be designated TC Standard (STD). If the item's make and model number are not precisely known, the item may be generically designated TC STD provided the item's functional and physical characteristics are firmly established based upon completion of (or formal waiver obtained for) all RDTE funded activities described in paragraph V.E. page 17.40. As stated previously, TC activities are conducted prior to production to validate that the item can satisfy the materiel requirement if selected for quantity procurement. TC is then definitized after final product selection when the manufacturer's make and model number are known. A HQDA-approved BOIP/QOPRI is required for TC.

d. In addition to the TC STD designation, AR 70-61 (paragraph 1-5b) authorizes use for TC Limited Procurement Test (TC LPT), TC Limited Procurement Urgent (TC LPU), and generic TC.

17.11

1. Type Classification Limited Procurement Urgent (TC LPU). As stated in AR 70-61, paragraph 1-5b(1), the LPU designation may be applied to NDI as well as developmental items needed to meet urgent operational requirements that cannot be satisfied by an item presently in the Army's operational inventory. NDIs designated TC LPU which meet investment criteria may be procured by Procurement Army (PA) funds only if they will be issued directly to Army field elements for use in conducting an Operations and Maintenance, Army (OMA) funded operational mission. Until an NDI, along with its basic issue items, peculiar support equipment, related program software, and system documentation package is designated TC STD, the NDI RDTE project line must remain open. This RDTE project line is used to fund the same type of actions (product testing/evaluation/assessment, reconfiguration, refinement, preparation or addition of program or system documentation/software, etc.) directed to or triggered by the NDI that would be properly chargeable to an RDTE project line if directed to a developmental item designated TC LP. Source selection is not to be confused with the NDI candidate selection process leading to final TC.

17.12

2. Type Classification Limited Procurement Test (TC LPT). This designation normally is limited to developmental items. As stated in paragraph 1-5b(2), AR 70-61, waivers to allow TC LPT to be used for NDI must be approved by HQDA. TC LPT applies only when the materiel acquisition process decision authority approves additional tests to ensure that developmental items or NDI can be economically produced by establishing a pilot production line and that the mass produced item is the same as developmental prototype items or NDI evaluation items. As stated in AR 70-15, paragraph 1-6g(1), TC LPT items (which must be procured by RDTE) are authorized only to supply hard-tooled models for technical testing (TT) and user testing (UT). As stated in AR 70-10 (paragraphs 4-2a and 4-3a), TT is funded entirely by RDTE; UT also is funded entirely by RDTE if the item has not been TC STD. As previously stated, the NDI RDTE project line must remain open to fund all activities described in paragraph V.E until the item is TC STD.



3. Generically Type Classified Standard (TC STD). Often when purchasing an NDI, the specific make, model and component parts are not known at the milestone decision review authorizing procurement. When this situation occurs, TC STD is not possible without significant delays between the time the successful contractor is known and the contract is awarded. AR 70-61 provides for a two-step TC process. The first step is a generic TC using performance parameters. The second step is to TC STD using the make, model, and component parts of the item supplied by the successful contractor. All prerequisites for TC STD must be addressed when requesting generic TC STD. After source selection, the specific date for TC STD must be specified and the required actions taken to attain TC STD subsequent to award.

4. The solicitation document is issued by the AMC commodity-oriented MSC consistent with existing Federal Acquisition Regulation (FAR), DOD FAR supplements, and other regulatory guidance.

a. The solicitation document normally includes the following:

(1) Functional specification requirements, including performance, range of operation, desired physical properties, transportability, protection from corrosion/other forms of material deterioration, MANPRINT, etc.

(2) Schedule of required availability of prime product and ILS deliverables such as manuals, training materials, and spare parts.

(3) Desired maintenance considerations from unit-to-depot levels.

(4) Requirement for warranties.

(5) Approved test and evaluation issues and criteria.

(6) Production Qualification Test (PQT) and Quality Conformance Requirements that relate to the performance and durability of NDI.

(7) Evaluation criteria to be used in source selection.

(8) Contractual terms and conditions, including appropriate data rights clauses.

17.13

(9) Requirement for interim-contractor support, transition from contractor to organic support, or life-cycle contractor support, if the requirement for this type support is anticipated and is an acceptable strategy, documented as part of Milestone I decision reviews.

(10) Configuration management requirements.

(11) Post production planning support requirements.

b. The solicitation document normally requests the offerors to provide:

(1) Provisions for any Preplanned Product Improvement (P3I). Planned future improvements to enhance the system and achieve a required operational capability (see chapter 16).

(2) Warranty data to include acquisition costs for the hardware item and administrative costs.

(3) Description of support equipment and test, measurement and diagnostic equipment (TMDE) recommended by offeror.

(4) Description and samples of commercial user documentation, training manuals, training materials, maintenance manuals, and availability of contractor training.

(5) Description of testing done by contractor on system, including test procedures followed, test data, and results achieved.

(6) Contractor price schedule to establish initial and projected life-cycle costs, including costs of data rights for the item.

(7) List of current users of the product (if any).

(8) Statement on availability of components and spares over intended Army life-cycle (may lead to "one time" buy to ensure support).

(9) Identification of any restrictive data rights.

5. Offers will be evaluated using prespecified evaluation criteria in accordance with the FAR. Lowest bid price may not necessarily be the ultimate criterion for selection. The ultimate criterion for selection should be the best value to the Army in terms of meeting the requirements at the lowest life-cycle cost. Contracts will not be awarded to contractors with a history of providing unsatisfactory supplies or services. (See DOD FAR Suppl.)

6. Contract award goes to the contractor who best satisfies the entire requirement. At this time, action to TC STD will be initiated if generic TC was used at the production decision, i.e., Milestone I/III for NDI category A and Milestone III for NDI category B.

#### C. PRODUCTION AND DEPLOYMENT PHASE.

1. AMC planners establish the hardware availability date based upon both production lead-time agreed to with the selected contractor and essential support requirements.

2. If required, AMC and/or the contractor conducts PQT in accordance with AR 702-9 prior to fielding.

3. If required, new equipment training commences and may be performed by the contractor.

4. The Materiel Fielding Plan (MFP) is finalized and the Materiel Fielding Agreement completed jointly by AMC and the gaining Army major commands (MACOMs). The ILS strategy reflected in the MFP varies with the particular NDI and applies to the end item, the Line Replaceable Unit (LRU), or the piece-part level. Materiel release will be accomplished in accordance with AMC-R 700-34.

**17.15**

5. Fielding.

a. The First Unit Equipped Date (FUED) is based on having the end item and support concurrently available. Initial Operational Capability (IOC) date is reached when the initial Modified TOE (MTOE) unit and supporting elements attain the capability to operate and maintain a production item or system.

b. The operational tester and evaluator conducts a follow-on evaluation as directed by the Milestone I/III decision review.

NOTE

The process depicted in paragraph III shows two milestones. In some cases, only one milestone may be required. If a program can be clearly demonstrated as low risk, it may be possible to prepare the solicitation document as part of the MI. In that case, the combined Milestone I/III decision review approves the NDI AS, authorizes competitive procurement, and issues generic TC. Definitive TC STD and completion of any other necessary planning can be validated through the materiel release process (AMC).

#### IV. MARKET SURVEILLANCE/INVESTIGATION.

Now that you have seen how we want to acquire NDIs, let's look at some of the things which make NDI acquisitions different from standard military developments.

##### A. MARKET SURVEILLANCE.

Market surveillance is a systematic effort to gather information/data. This effort is performed to develop and maintain awareness of marketplace activities and products with potential for Army use. Market surveillance is accomplished by AMC laboratories and Research, Development, and Engineering (RD&E) Centers and USASAC (providing information on foreign sources and equipment). Market surveillance provides a knowledge base for beginning specific MIS. Such knowledge may also stimulate the generation of new requirements. Primary sources for market surveillance information/data are:

1. Industry publications/catalogs and product data sheets.
2. Trade Shows.
3. Journals.
4. Compilation guides and registers (e.g., Dunn & Bradstreet/Thomas Register).
5. Defense Logistic Agency (DLA) catalogs.
6. Symposia proceedings.
7. Independent research and development (IR&D) reports and presentations.
8. Previous Government contracts.
9. Joint Logistic Commanders (JLC) commodity groups and the service's Posturing Plan.
10. Site visits.
11. Discussions with industry representatives.
12. Participation in standardization committees.
13. Unsolicited proposals.

17.17

14. Advanced Planning Briefing to Industry (APBI) feedback.
15. TRADOC Concept Evaluation Programs.
16. Equipment test and evaluations.
17. Foreign military data exchange/International Materiel Evaluation (IME).
18. Patent searches.

## B. MARKET INVESTIGATION (MI).

An MI is the process of gathering information in response to an O&O Plan. It is a central activity in the Proof of Principle Phase, leading toward an initial milestone review decision as to whether or not to select an NDI AS. The MI will also provide the basis for the finalization of the requirements document and for determining whether to procure competitively or from a sole source, how logistic support should be provided, and what additional testing should be done. An MI is conducted only for programs with high enough priority to receive funding in the Mission Area Materiel Plan (MAMP) review process. Unfunded programs will be retained at the market surveillance level. MI consists of data gathered from market surveillance and other sources such as telephone surveys, questionnaires, user experience, and review of commercial specifications. AMC leads the MI effort and uses MI data to find NDIs which can potentially satisfy the requirements document. USASAC provides information as to foreign items, sources, and capability. TRADOC is an active participant in MI and uses the MI data to determine if NDI is potentially capable of satisfying the requirements document. The independent evaluators participate in MI by identifying issues which should be addressed to ensure suitability.

**17.19**

1. Conduct of the MIs. MIs may vary from informal telephone inquiries to comprehensive industry wide reviews. Maximum use should be made of available data (e.g., contractor sources, user experiences, independent test, and certification agencies). The initial IEPs, prepared by both the Technical and Operational Independent Evaluators along with the O&O Plan, are the basis for MIs. MIs are normally conducted in two phases:

a. During the first phase, MI information is consolidated and supplemented to determine the nature of available products and number of potential vendors. This should include inputs from USASAC as noted in appendix B. Based on this preliminary determination, the AMC commodity-oriented MSC decides:

(1) Is there sufficient information to make the NDI decision?

(2) If there is not sufficient information to make the NDI decision, what additional information is needed to support a sound NDI decision? This information is gathered in the second phase.

b. During the second phase, sufficient data is collected to--

(1) Support a definitive NDI decision. This may include a "request for information" advertised in the Commerce Business Daily (CBD), as well as letters of inquiry to foreign embassies and U.S. elements in foreign countries to determine availability of potential foreign items. The "request for information" is a brief narrative description of the requirement which invites interested vendors to respond. Respondents will not receive payment or a commitment from AMC. Respondents should be sent draft performance specifications and a detailed questionnaire designed specifically to determine their product's suitability for satisfying the Army requirement. Also involved may be the purchasing and/or leasing of test samples or test items to conduct operational/combat suitability tests, to evaluate the ability of the equipment to satisfy Army requirements, and to help build the functional purchase description or system specification. This testing will not be used to select or eliminate any particular vendor or product, unless preceded by competitive contracting procedures.

**17.20**

(2) Finalize the appropriate requirements document (ROC/TDR/CTDR).

(3) Develop an AS responsive to the requirements.

2. Market Investigation (MI) Questions.

a. The following are sample questions:

(1) Are there one or more off-the-shelf NDI products that satisfy the requirements document? If none, can an off-the-shelf NDI be modified or can the military requirement be relaxed without degrading the core performance needed?

(2) Are available products efficiently transportable in their operational configuration via highway, marine craft, railroad, aircraft, and military tactical vehicles in a theater of operation? (Note: Coordinate with Military Traffic Management Command/Transportation Engineering Agency/(MTMC/TEA).)

(3) Are there suitable products available in sufficient quantities to meet the Army's requirements in both peacetime and wartime without unique or separate production runs?

(4) Are there support systems, including parts and backup capabilities, that satisfy the Army's needs for the life of the system? If not, this may lead to a "one-time" buy to support the product.



(5) What is the extent of competition?

(6) Are commercial standards and warranties adequate to protect the Army's interest?

(7) Are commercial training, operating, and maintenance manuals available and can they be made available for review?

(8) Do vendors making the NDI have good product quality and product support history?

(9) Is the vendor willing to demonstrate the item at an Army location?

(10) What human factors engineering features have been incorporated and are they adequate?

(11) What configuration management controls exist and are they adequate?

(12) Are Army safety, health, and environmental requirements met?

(13) Is the NDI disposal technique feasible, (e.g., disposal of hazardous wastes)?

(14) Are commercial distribution channels available and adequate to satisfy Army requirements in whole or in part?

(15) Are the companies employing reliability, availability, and maintainability (RAM) design and test disciplines? To what degree do they compare to Army RAM design and test disciplines?

(16) What is the status of the technical data package (TDP) describing the NDI products to include the extent to which proprietary data rights apply?

(17) Is on-shore production capacity available to meet surge and mobilization requirements?

(18) Are there special requirements for precious metals, strategic and critical materials and are related bills of material obtainable?

17.21

b. In addition to the above questions, the independent evaluators provide their questions to be answered in the MI process. These are specific and peculiar to the item to be procured (e.g., performance, operation, design features). These questions are provided by the technical and operational independent evaluators in their initial IEPs.

3. Information to be Obtained from MIs. While the value, type, and complexity of needed products influences data to be gathered, the following are examples of information that must be obtained.

a. Product availability related data.

(1) List of NDI products satisfying identical or similar Army requirements.

(2) Changes, if any, required to NDI products to enable them to meet Army requirements.

(3) Product descriptions used by other Government activities or in commercial transactions, including commercial specifications and standards.

(4) State-of-the-art, potential for technological innovation or change, and development cycle.

b. Industry related data.

(1) Number and competitiveness of manufacturers.

(2) Size and location of manufacturers.

(3) Product distribution channels.

(4) Business practices in sales and distribution from manufacturers to wholesaler, distributor, or retailer to user.

(5) Production capacity to meet Army requirements as part of commercial sales and appropriate time to buy.

(6) Packaging, packing, and preservation practices.

(7) Average time between model changes and practice of providing continued parts inventories or production for phased-out models.

(8) Length of time the product has been produced by a manufacturer.

c. Commercial market acceptability related data.

(1) Product quality and RAM experience of similar users.

(2) Warranty terms and practices. (See AR 702-13.)

(3) Need for Preproduction Qualification Testing (PPQT) or PQT and special quality assurance requirements, if any.

(4) Product evaluation criteria (including life-cycle criteria, as applicable).

(5) MANPRINT issues such as human factors and system/product safety as experienced by similar users.

d. Product support related data.

(1) Repair parts availability and lead times, documentation, pricing, and distribution systems.

(2) Customer service, installation, check out, and user maintenance instructions.

(3) Requirements and provisions for MANPRINT.

(4) Requirements for and availability of tools, test equipment, computer support resources, calibration procedures, operations, and maintenance manuals.

(5) Warranty procedures and commercial repair capabilities. (See AR 702-13.)

(6) Manufacturer calibration, repair, and overhaul practices and capabilities documentation.

(7) Manufacturer commitment to outyear support.

(8) Degree of technical data package availability.

4. Sources. If an MI is to be thorough, it is critical that all possible sources of applicable data be explored. The sources will vary with the nature and complexity of the commodity under consideration. In addition to the technology base residing in each AMC commodity-oriented MSC, other sources will need to be considered. The following is a sample of possible sources:

a. Inter-Government and intra-Government users.

17.23

- b. Users outside of Government.
- c. Contacts with industry/trade shows.
- d. Independent test/certification activities/companies.
- e. Public and private academic institutions.
- f. Literature.
- g. Foreign Governments/contractors (appendix B, USASAC Foreign Equipment Role in the Acquisition Process.).

5. Creation of Solicitation Documents. The results of the MI, AS, and ILSP are used to develop solicitation documents. Specifications contained in the solicitation documents are written to be satisfied by the NDIs evaluated but must not be written around any particular manufacturer's product. One way to preclude the appearance or actuality of over specifying to one manufacturer's benefit is to make the draft functional purchase description or specification available to industry for comment.

#### V. OTHER NDI CONSIDERATIONS.

##### A. PROCUREMENT.

The key to NDI is the procurement of a total package including spares, repair parts, and other support.

1. Solicitation Document Considerations. The offer (e.g., proposal, quote, bid) preparation instructions contained in section L of the solicitation document for NDI procurement will require specific information from offerors regarding their products. The following are sample requirements:

- a. A description of the performance, supportability characteristics, range of operation, physical properties, and environmental behavior of the offeror's system and components.
- b. Supporting evidence of the offeror's testing, including test results, test data, and conditions.
- c. Acceptance test plans for the system and its components.
- d. Pricing information for all repair items and consumables required to support the end item, including support and test equipment. Identification of all current sources of each repair item with justification (e.g., reliability, price) for any preferential selection of sources.

e. Plans for providing form, fit, and function controls while maintaining a reasonable flow of performance and maintenance improvements.

f. Plans to assure availability of product, components, and spares and repair parts over the intended Army life-cycle.

g. Industrial Preparedness Plans which assure availability of the product from United States or Canadian sources to support surge and mobilization requirements (AR 700-90).

h. Identification of military specifications and equivalent standards that are met by proposed system. Offerors should identify those requirements contained in the specification that are not satisfied and provide justification for the difference.

i. Description of data, documentation, manuals, and training materials to be furnished. This includes proposals and pricing data for contractor - furnished support on a continuing basis and assisting the Army in establishing a training base.

j. Identification of proprietary items and data rights.

k. Past quality history data on the product, e.g., acceptance test records, customer complaints, warranty claims, scrap, repair, and rework data.

l. Identification of the types of skills and quantities of personnel required to operate, maintain, and repair the item when employed in a military environment (MANPRINT).

m. Certification that the product meets Army health and safety requirements stated in the solicitation document.

n. Description of proposed warranty procedures.

2. Evaluation Criteria. A key factor in preparation of an offer is a firm and complete understanding of the evaluation criteria. Evaluation criteria for NDI will be expressly stated in section M of the solicitation document. The following guidelines apply to the development of evaluation criteria:

a. A physical demonstration of the system's characteristics and support, using the offeror's hardware and specifications set forth in the solicitation document, may be required. Demonstrated system must show compliance with--

(1) Functional areas of the operational requirement.

17.25

(2) Performance specifications.

b. Evaluation of offers submitted by offerors determines the best value to the Army. Offeror's past quality history will be a key evaluation criteria in making this determination.

3. Procurement Alternatives. The AP, alternatives, and methods of acquisition are determined based on the NDI program objectives, strategy, conditions, and constraints. The AP and alternatives must give primary consideration to "full and open competition (F&OC)" as opposed to "other than F&OC" with second sourcing techniques to introduce F&OC. Methods of acquisition include sealed bidding (Invitation for Bid (IFB)) and negotiation (Request for Proposal/Request for Quote(RFP/RFQ)).

a. Both the statement of requirements and the NDI AS must be clear enough to get good results using accepted procurement methods and contract types. We should rely on the specification or functional purchase description to request the right technical/performance parameter, so that final product selection does not require technical evaluation where we end up revisiting the requirements document. The preferred contracting method for NDI acquisition is a two-step sealed bid. However, as an alternative, the firm fixed-price negotiation method may be used. Use of any other contract method/type must be approved by HQ AMC (AMCPP) 30 days in advance of issuing the solicitation document. Requests for approval must include complete rationale and justification for exception to preferred method policy.

b. The two-step sealed bidding method of contracting is typically appropriate for category A and category B when modification is not extensive. This approach allows the development of a sufficiently descriptive specification that is not an unduly restrictive statement of the Army's requirement.

(1) The first step consists of the solicitation and evaluation of technical offers (unpriced). These offers include supporting data in terms of manpower requirement, provisioning data for use in prescreening, commercial technical manuals, training packages, proposed warranties, and other elements required to evaluate the offer.

(2) Step two involves the submission of sealed priced bids by those who submitted acceptable technical offers. Award is made to the offeror proposing the best value to the Army.

c. Contract by negotiations is used when, due to the nature and complexity of the acquisition, direct negotiation is required to determine the best value for the Army. This method is applicable to NDI category B with extensive modification and to the third level of NDI effort involving component integration.

4. Warranties/Guarantees. Warranties are required by statute (10 USC 2403) for weapon systems that are used directly in combat operations and exceed \$100,000 in unit cost or \$10 million in total eventual procurement cost. DOD FAR Supplement Subpart 46.7 provides detailed guidance. Army acquired warranties must comply with AR 700-139, Army Warranty Program. The primary emphasis of the program is as follows:

a. Comply with the requirements of the statute for mandatory weapon system warranties.

b. Tailor warranties to utilize the existing supply and maintenance system. Commercial warranties require unique procedures, forms, and notification processes which are not compatible with the Army usage or logistical support. The basic purpose is to support equipment under warranty in the same manner that will occur in post-warranty operation.

c. Warranties must be transparent (i.e., require no workload) to the unit and intermediate-direct support maintenance levels. Individual warranty claims cannot be required at levels below intermediate-general support, based on the equipment maintenance allocation chart.

d. Warranties must be cost-effective. This includes warranties that are voluntary in addition to those required by statute. Weapon system warranties require formal cost-effective analysis using approved methodology. Voluntary warranty cost-benefit analysis must be documented in contract files.

e. When commercial warranty cost is embedded in the unit price and a user-transparent warranty cannot be tailored, the warranty will be executed for systemic defects only and not fostered onto the user.

5. Small Business Considerations. The Government encourages participation of small business in meeting military requirements. We want to extend this approach to NDI acquisitions. To accomplish this--

a. Ensure solicitation documents do not place unnecessary burdens on small businesses.

b. Identify NDI particularly suitable for small business.

c. Carefully evaluate a small businesses' capability to meet contractual ILS requirements and support the NDI for its intended life cycle.

d. Statutory and regulatory provisions enacted from time to time, e.g., FY appropriation and authorization acts, must be examined for their possible impact on small business participation in NDI acquisitions. Still, the Army may require offerors to demonstrate their ability to produce. Any proponent of an NDI acquisition must be aware of these issues and the potential risks they pose. The AMC Competition Advocate can provide proper guidance.

6. Off-Shore Procurement.

a. The use of NDI procured from outside the US presents challenges and requires special emphasis to--

(1) Provide translation and technical interpretation in order to convert to Army technical manuals (TMs).

(2) Handle "buy-outs" of the Army Acquisition Objective (AAO) and production planning for surge and mobilization requirements.

(3) Provide contractor support comparable to the degree provided by US sources.

(4) Obtain data rights or procedures to obtain the data rights.

(5) Assure that safety and health characteristics meet US standards.

(6) Obtain licensing arrangements between foreign and domestic contractors and possible additional testing of items produced with new tooling.

b. The USASAC will upon request provide guidance, policy, and procedures with respect to acquisition of foreign materiel and technology.

17.28



7. Reprourement Data Rights. For NDI, AMC must consider all the alternatives and associated risks when deciding whether or not to acquire data rights for the NDI item. Data rights are not always available or for sale. When they are available, AMC must carefully assess their readiness value versus cost in determining the level of data rights (e.g., specific components versus total system) to purchase, if any. To facilitate this decision, AMC requests contractors to identify all proprietary components/parts, including those of subcontractors. AMC can avoid the expense of purchasing reprourement data rights but must rely on the vendor to provide repair parts throughout the life-cycle of NDI. It is desirable to avoid the potential high cost of life-cycle sole source suppliers. Therefore, where practical, a reprourement data package should be contracted for as part of the NDI acquisition effort. This will reduce the AMC risk and enhance competition. We may also require the vendor to provide the rights after a specified timeframe. NDI contracts must address competitively reprourement of spare and repair parts, whenever possible for NDI.

Application of AMC spare parts breakout policy to NDI must consider the particular reprourement data package and the NDI category. The specific parts breakout and reprourement data package options are dependent upon the source selection. The breakout program will be applied to the maximum extent possible to any centrally-managed replenishment spare/repair parts for military systems. For NDI, reprourement data package will support the intended use. For breakout purposes, the following is the desired amount of data required for each NDI category.

a. Category A.

- (1) Performance specifications (form-fit-function).
- (2) Full disclosure of sources of supply.

b. NDI Category B.

- (1) Performance specification.
- (2) Altered item drawings.
- (3) Specification control drawings.
- (4) Commercial format drawings.
- (5) Full disclosure of sources of supply.

17.29

c. Third Level of NDI Effort. Parts breakout data for this level of NDI effort is similar to that for a development item.

NOTE

While the discussions above deal primarily with hardware, the same issues exist in the procurement of computer software. Specific guidance of NDI reprourement data package policy can be found in AMC-R 70-46 Technical Data Package for Procurement and Production of AMC Materiel.

8. US Army foreign Military Sales Program. This program is part of the decision process to procure foreign hardware and must be an evaluation of the limitations, if any, placed upon the US Army by the selling government which restricts the U.S. Government from reselling the equipment to other U.S. Allies in response to direct foreign requests under the US Security Assistance Program. If such limitations exist, they may render the procurement infeasible.

9. Standardization. Several programs are executed for the purchase of quantities less than the Army Acquisition Objective (AAO) due to funding constraints or other reasons. The AS recognizes the need for rebuys in the future. Rebuys can also be driven by increases in Army applications or uses of the system or interests of sister Services in the program. The FAR, 1 Apr 85, included provisions for other than F&OC, in support of standardization (subpart 6.3) for procurement of additional units or replacement items. Application of this subpart requires a notice (reference FAR 52-215-4) in section L of the original solicitation document. Program participants must carefully assess the potential for future procurements and apply this subpart as appropriate.

10. Contract Provisions. This handbook does not supplant existing laws and regulations governing the contracting process. In the event of a conflict between handbook language and those laws and regulations that govern the contracting process, the latter prevails.

## B. INTEGRATED LOGISTIC SUPPORT (ILS).

1. ILS Importance. ILS is often the most difficult aspect of NDI acquisition. ILS demands day-to-day top management attention, both by AMC and contractor. ILS cannot and must not be sacrificed to hardware schedule and cost constraints. If it is known that full logistic support will not be available at the time of fielding, a work-around plan will be developed to provide the best level of logistics support possible until the ILS process provides the requisite support. A successful ILS process can only be achieved through the joint effort and commitment of AMC, TRADOC, and the contractor. This mandates that an ILS Plan (ILSP) be developed by AMC and TRADOC concurrently with the AS. The AMC/TRADOC partnership conveys both the importance of ILS and specific requirements to the contractor through the solicitation document and contract. The ILSP should be coordinated with other acquisition participants. Formation of an ILS Management Team (ILSMT) should be considered for this purpose. The ILSP must precisely document--

- a. Overall ILS requirements.
- b. The initial support package that will be available during and after fielding, based on requirements set by TRADOC.
- c. How we will achieve that initial support capability.
- d. How we will transition to desired Army support within a reasonable time period.
- e. Requirements and detailed plans for each function and element of ILS using information obtained from the MI.

2. Design Influence. During the materiel acquisition process and as part of the MI, the design characteristics are evaluated in terms of MANPRINT, supportability issues, costs, and compatibility with support equipment. The design characteristics are included in the functional purchase description or specification and used as source selection criteria, thus serving the intent of logistic design influence.

17.31

3. Logistic Support Analysis (LSA)/LSA Record (LSAR). LSA is an integral part of the development of requirements documents (O&O Plan, ROC, etc.) and the MI. LSA is used in determining initial and life-cycle support concepts and identifying potential support problems and developing solutions. LSA also causes the documentation of ILS element requirements in the LSAR. The LSAR is tailored to provide phased delivery of data required to determine interim and subsequent support resource requirements. LSAR deliverables should be requested to provide timely completion of ILS schedules. (See AR 700-127, MIL-STD-1388-1A, and MIL-STD-1388-2A.)

4. ILS Resources. Overall ILS resources are identified and provided. Where necessary, additional ILS resources are provided to expedite both AMC, TRADOC, and contractor ILS efforts.

5. Supportability Test and Evaluation. If commercial market-place testing does not address the intended military environment and equivalent information cannot be obtained from existing sources, test and evaluation may be required to determine or verify maintenance skill requirements, training requirements, transportability issues, the use of standard support and test equipment, etc. Independent evaluation results will be provided to AMC and TRADOC.

6. Maintenance Planning. The initial maintenance plan generally accepted for most NDIs is to provide the using unit with the capability for fault isolation to the line replaceable unit (LRU), either through the use of built-in test (BIT) or the use of manual TMDE test procedures. The maintenance personnel in the unit can then remove the LRU and replace it with a working element and evacuate faulty LRUs to the intermediate direct support facility. Intermediate direct support facilities stock LRUs for direct exchange purposes. Note that both using units and intermediate direct support levels are manned by military operators and maintenance personnel. Items not repaired by the intermediate direct-support level are shipped to intermediate general support or depot, which may be manned by military, civilian, and/or contractor personnel. Depots usually have the capability to repair to the piece-part level. Inadequate facilities such as Depot Maintenance Plant Equipment (DMPE) are upgraded through the Industrial Preparedness Program (AR 700-90). The preferred maintenance alternative is selected and subsequently refined into a detailed maintenance plan. The MI should provide information identifying which maintenance alternatives are viable for the NDI under consideration. Transition plans are formulated, when required.

7. MANPRINT MANPRINT activities begin during formulation of the O&O Plan. Unlike new developments, NDI limits MANPRINT options because it may be starting with a defined end product or component. Due to these limits, early Requirements/Tech Base and Proof of Principle activities must focus on identifying MANPRINT issues and developing accommodations or "work-arounds."

a. MANPRINT activities will predict system demands on future personnel inventory and whether there are unsupported requirements (human factors engineering issues, quantity, mental category, task loading, military occupational specialty (MOS), training burden). Where there are shortfalls, tradeoff determinations are necessary.

(1) For strictly off-the-shelf NDI, analysis is required to determine if the standard NDI configuration meets MANPRINT criteria, goals, and constraints. If it does not, this leads to a re-evaluation of the basic NDI decision, a review of other NDI variations, or modification of initial operations and support concepts.

(2) If we pursue an NDI strategy that modifies the equipment or integrates components, then MANPRINT findings might be compensated by simple system design modifications.

(3) Results of MANPRINT analysis could--

- (a) Dictate modification of commercial equipment.
- (b) Affect source selection.
- (c) Drive contractor logistic support.
- (d) Eliminate NDI as a solution.

b. MANPRINT Team. AMC is ultimately responsible for putting MANPRINT on each system, but it takes a team of functional experts to do it. This team includes--

(1) ILS Manager. The AMC ILS manager will assure the entire AMC community accomplishes MANPRINT implementation in coordination with the other functional experts.

(2) User Representative (TRADOC System Manager or other TRADOC point of contact). TRADOC has lead responsibility to do Hardware versus Manpower (HARDMAN) methodology and Early Comparability Analysis (ECA) during Requirements/Technology Base and Proof of Principle Phases.

(3) Human Engineering Laboratory (HEL). The primary roles of HEL under MANPRINT are to provide industry with appropriate human factors engineering (HFE) criteria, prepare human factors engineering analysis (HFEA) on selected developmental items, conduct research in critical areas of HFE, and provide consulting service to AMC, TRADOC, and others involved in the materiel acquisition process. HEL should be consulted for expert advice.

(4) Safety. The AMC commodity-oriented MSC Safety Office reviews the system safety issues.

(5) Surgeon General. The Surgeon General reviews and is responsible for the Health Hazard Assessment (HHA) for materiel systems.

(6) Contractors. Industry must deliver products that will compensate for the finite capabilities of soldiers and the training base. For NDI, we must let industry know clearly what our MANPRINT needs and constraints are in the solicitation document.

(7) Testers. The technical and operational evaluators address MANPRINT in their IERs for the milestone decision reviews. For NDI, all testing should be minimized, however, MANPRINT data is still required. In developing the TEMP, special emphasis should be placed on gathering MANPRINT data, preferably from existing sources (contractors, other users, consumer agencies, and independent private sector test activities). If testing is needed, MANPRINT test issues and criteria must be communicated to the test community so that proper issues are identified and tested. Testing must be accurate, and most importantly, treat MANPRINT failures as system failures.

7. Supply support. The provisioning strategy follows the maintenance strategy. Actions required to establish interim support are expedited. Phased delivery of tailored LSAR data is used. Normally, intensive management is used to provide for maintenance float and Authorized Stockage List/Prescribed Load List (ASL/PLL) items for the interim support concept. Prescreening of manufacturer's part numbers for national stock numbers (NSNs) by the contractor is required because NSNs must be assigned to all spares and repair parts anticipated to require any replacement in the field. If NSN assignment and LSA data collection cannot be completed 240 days prior to FUED, then interim contractor support must be obtained. This decision needs to be made early enough to arrange for the correct amount of support for the correct length of time and the proper amount and type of funds to be secured to support the interim contractor support.

8. Support Equipment and TMDE. Requirements for test equipment and Associated Support Items of Equipment (ASIOE) must be identified as early as possible and included in the BOIPFD/QQPRI and BOIP. Use of Government-standard test equipment in lieu of contractor-recommended unique test equipment must be determined early. AMC should expedite and closely monitor the use of data interchange to provide an initial interface of ASIOE requirements.

9. Training and Training Devices. Overall training requirements have to be determined on an expedited basis. Equipment and personnel requirements are identified in the BOIP/QQPRI. Extensive contractor assistance may be required for initial new equipment training and establishing the institutional training base. These requirements are determined jointly by AMC and TRADOC in close coordination with intended users. If training aids or devices are required, use of contractor-owned or contractor-provided equipment may be necessary. Special needs of the TRADOC school or user will be identified and met, where possible. Expedited delivery of initial production items to the TRADOC school will often be required.

10. Transportation and Transportability. Prior to completion of the solicitation document, requirements for transportation within the Defense Transportation System (DTS), handling, tie-down, and packaging for both overseas and in theater movement are determined. Commercial standards are used to the extent they satisfy military requirements; however, any required modifications should be included in the solicitation document. Where necessary, Army transportability experts participate in pre-contract award negotiations. The high cost of post-production modification to enhance transportability characteristics must be avoided. NDI problem items, in accordance with AR 70-47, are required to move through a formal approval process at each milestone and require MTMC participation throughout.

11. Technical Data. Due to the compressed acquisition cycle associated with NDI, the emphasis should be placed on supporting training and initial fielding with authenticated commercial manuals. The decision to use commercial manuals, however, must be based on acceptability of the manuals to AMC and TRADOC. Supplementation of the commercial manual to add maintenance allocation chart, repair parts lists, etc., will be done by AMC and coordinated with TRADOC.

If commercial manuals are not acceptable to AMC and TRADOC, AMC must take action to prepare DA TMs in accordance with AR 310-3. Close coordination with the HQDA Army Publications Directorate should be maintained. In addition to manuals, technical data

17.35

including drawings, test data, etc., should not be procured beyond detail required (i.e., form, fit, and function).

C. TEST AND PRODUCT ASSURANCE.

An important advantage of NDI alternatives is reduced acquisition time. This is accomplished, in part, by minimizing Army testing on NDI. General guidance is that we will not test when existing data (contractor or other sources) provides us reasonable answers. It is imperative that independent evaluators get involved early, participate in the NDI program, and provide IEPs and IERs.

1. Testing Prior to Initial Milestone Decision Review. AMC testing should be limited to that absolutely necessary to obtain data necessary to make the NDI decision. This is accomplished through the MI.

a. As an initial step, the Army will minimize testing by--

- (1) Obtaining and assessing contractor test results.
- (2) Obtaining usage/failure data from other customers.
- (3) Observing contractor testing.

(4) Obtaining test results from independent test organizations, e.g., Underwriter's Laboratory.

b. If, based on this initial data collection, it is decided that more information is needed to make a sound NDI decision, the MI may enter into an evaluation phase. NDI candidates may be bought or leased, and technical and/or user tests (including RAM and logistic support) should be conducted in the operational/combat environment. Safety procedures, in accordance with AR 385-16, must be followed prior to conducting user testing. The results will--

(1) Directly support the AS to accept or reject the NDI alternative.

(2) Influence preparation of requirements documents (ROC/TDR/CTDR).

(3) Assist in preparation of solicitation documents.

The test results will not be used to select a specific contractor or product.



2. Testing After the Initial Milestone Decision Review. All testing after the initial milestone decision review must be described and justified in the DCP and TEMP and specifically approved by the program decision authority.

a. Technical Test (TT). No TT will be conducted unless AMC identifies specific information needs that cannot be satisfied by contractor or other test data sources. The Army will not demand test data in rigid formats, but it will be flexible in accepting data that answers the essential questions. Risks associated with hardware/software modifications (NDI category B) and the third level of NDI effort involving integration of components will be carefully considered when determining test requirements.

b. User Test (UT). NDI does not automatically mean no UT. If AMC demonstrates through the MI data that NDI products will satisfy the requirements document, UT will not be required with TRADOC concurrence. This determination must be included in the initial milestone decision review documentation (DCP and TEMP) and approved by the program decision authority. For NDI category A, UT will not normally be required. For NDI category B, UT will be required only when critical issues in the IEP have not been addressed. A prior concurrence of the operational tester and evaluator is required to eliminate UT.

c. Testing by NDI Category. Testing requirements will be tailored to each specific system. The following testing guidance by NDI category is not a rigid requirement, but rather general characteristics of testing activities appropriate to each NDI category. The goal of minimum testing still remains regardless of NDI category.

(1) Category A. No testing prior to PQT except when the contract awarded to contractor who has not previously produced an acceptable finished product and the item is assessed as high risk. In that case, preproduction testing should be required.

(2) Category B. Feasibility testing is required in the military environment. PPQT is required if feasibility testing results in fixes to the item. PQT is required. Limited user evaluation may occur during feasibility/preproduction tests.

(3) Third level of NDI effort (Integration of Components). Feasibility testing is required in military environment. PPQT of complete system required. Hardware/computer software integration tests required. User testing required. PQT required.

17.37

d. Follow-On Evaluation. Testing of the NDI after the first unit is equipped is oriented to the validation and refinement of operating and support cost/data, RAM characteristics, logistic support, training, provisioning planning, etc. These tests can materially aid the logisticians in supporting NDI throughout its life-cycle.

### 3. Reliability, Availability, and Maintainability (RAM) Requirement.

a. Quantitative RAM requirements will be developed for all NDI. Prior to the initial milestone decision review, a tailored RAM Rationale Report (RRR) will be written based on a thorough user analysis. These RAM parameters contained in the RRR will be considered against what is available in the marketplace as described by the MI. The criteria for evaluating RAM for NDI should be the same as for development programs. (see matrix, appendix B.)

b. Many approaches can be taken to gather valid RAM data during the MI. One approach is to request/review any RAM analysis that the manufacturer performed in the development of the item. In the MI, a range of values limiting RAM requirements may be used as a baseline for the RAM assessment. When quantitative RAM data is not available, it may be possible to assess relative RAM values. These approaches and others should be used to obtain enough RAM data upon which to base an NDI decision.

c. If the independent evaluator determines that the MI did not provide data adequate to resolve the RAM issues, testing may be required. The TIWG should convene to provide alternative solutions to the decisionmaker.

d. When MI and/or testing demonstrates that commercially available equipment cannot meet the Army's RAM requirements, several alternative strategies exist. Existing commercial equipment may be modified to meet RAM requirements. Another alternative is to modify existing mission profiles/BOI, and then see if the commercially demonstrated RAM values are acceptable. Finally, when RAM is an extremely critical design characteristic, or when the commercial RAM parameters are far inferior to requirements, the NDI strategy may be abandoned.

e. For NDI categories A and B, a Reliability Program (MIL-STD-785) and Maintainability Program (MIL-STD-470) may be tailored for each acquisition. Depending on the information/data gathered during market surveillance and MI, reliability and maintainability (R&M) program tasks may be waived or implemented in part. Reliability and maintainability programs should be implemented for end items assembled from commercial component,

unless market surveillance or MI information can show the integration process is low risk. Requirements for formal R&M programs, or rationale for not pursuing a formal programs, should be documented in the DCP.

f. Follow-on evaluations may be performed on those items which demonstrated marginal RAM characteristics during PQT.

#### 4. Other Test Considerations.

a. Quality Assurance Provisions. A quality assurance provision must be specified for each functional and physical requirement in the contract (AMC-R 702-10).

b. Product Quality Management (PQM). A PQM plan will be developed and implemented for each NDI in accordance with DARCOM-R 702-6 and DARCOM-P 702-13.

c. System Safety Requirements. Essential safety characteristics specified in the requirements document will be used as the minimum safety elements during the MI process. Safety verification (testing) of the hardware may be necessary to validate acceptability of the system in the military environment as defined in the O&O Plan.

#### D. VALUE ENGINEERING (VE).

1. VE offers an opportunity in NDI to obtain cost savings after contract award with other possible benefits such as simplified design, increased quality and improved reliability.

2. With exception of NDI category A, NDI category B and component integration include modifications and/or systems engineering which can benefit the Army from a function-oriented VE effort.

3. A Value Engineering Change Proposal (VECP) and a Value Engineering Proposal (VEP) is valid if it--

a. Requires a change to the contract (such as substitution of a specified part or subsystem by another equivalent or better performing but less costly item).

b. Results in a cost savings to the Army.

4. It is imperative that contractors be provided an incentive to search for and locate unnecessary costs and to present VECP which will provide an Army savings. The VE Incentive Clause

provides that incentive. Use of the Value Engineering Program Requirements Clause (VEPRC) alternative should also be considered in developing the solicitation document and utilized where considered viable.

#### E. RESOURCES.

1. Funding. Overall funding of NDI is governed by comprehensive provisions contained in AR 37-100-FY and AMC Supplement 1 thereto. This section outlines the appropriate funding sources to be used for NDI acquisition. A schematic chart of the NDI funding cycle is included at Figure III.

a. Requirements/Technology Base Activities - Proof of Principle Phase(s). Currently, all activities integral to the Requirements/Technology Base Activities - Proof of Principle Phases are financed by AMC with RDTE resources. These activities, which exclude operational testing, range from formulating specific requirements documents (e.g., O&O Plan) and extend to the Milestone III Review, including NDI Type Classification for NDI category A. A more complete listing of these activities is provided in the schematic chart at Figure III. Operational testing will be funded by the organization responsible for conducting the testing.

b. Development Proveout and Production and Deployment Phases. Upon approval and type classification, "off-the-shelf" NDI quantities needed to meet national inventory or operations/usage requirement (i.e., quantity procurement) are acquired and funded by the current AMC end item manager as described below.

(1) Quantity procurement of investment-type end items (i.e., items usually costing \$3,000 or more) acquired from off-the-shelf or manufactured, are financed by--

(a) The applicable PA hardware line if intended for use by OMA mission activities which are not part of the industrial base.

(b) Normally, under the PA Production Base Support (PBS) Program, if an item is intended for use by Government-owned, Contractor-operated (GOCO) activities or non-RDTE Army Industrial Fund (AIF), users are excluded from participation in the Asset Capitalization Program (ACP). Type classified tools and equipment needed by a GOCO/AIF facility for the exclusive support of investment type NDI entering the operational inventory for the first time may be financed by the same PA hardware line used to procure the NDI.

17.40

(c) The RDTE appropriation, if intended for use by RDTE carrier installations.

(d) The Industrial Fund ACP, if intended for use by industrial funded activities operating under the ACP.

(2) Quantity procurement of expense-type end items (i.e., items costing less than \$5000 which are not designated as investment-type end items) are initially financed by the stock fund for subsequent sale to operational users.

(3) Production Engineering (PE). Should it become necessary following TC STD to accomplish any production engineering effort having a direct impact on the technical data/reprocurement data package of the NDI which does not involve any reconfiguration thereof, such effort is funded by the current AMC end item manager as follows:

(a) PE directed to any portion of an investment-type end item that is currently in production is funded using the same PE hardware line that is financing purchase of the end item. If the end item is out of production, OMA 738017.000Q1/Q2 funds are used to finance such effort.

(b) PE directed to an expense-type end item in or out of production will be funded using OMA 728012.1200 or .1900 funds as applicable.

(4) Reconfiguration. Following TC STD, should it become necessary to reconfigure (i.e., product improve) an NDI in any manner, such effort is accomplished and funded by the current AMC end item manager using RDTE, PA, OMA, or the Stock Fund as described in AR 70-15.

c. Procedural guides and routing. Two new R&D projects were established in fiscal year (FY) 1987 for conducting NDI MIs and for NDI testing.

(1) To secure funding under these new projects, submit work packages to HQ AMC (AMCDE-PB), element 6.58.10, R&D project D125, as unfunded requirements, for proposed MI of commercial or other existing items which are either to be a replacement item or to satisfy a new requirement.

(2) Submit separate work packages covering NDI MI currently planned in existing R&D projects. This investigation typically includes analysis of literature, visitation to possible vendors, and on-hand evaluation of users.

(3) Submit work packages under Program Element 6.58.10, R&D Project DE65, as unfunded requirements, for proposed evaluation of candidate items. The evaluation typically includes minor engineering modifications and testing of an item leading to development of performance specifications.

(4) Provide a statement in the work package that specifies the item to be replaced or the user requirement to be satisfied.

(5) Analyze the NDI program and provide recommendations for approval and funding to the review committee during the budget and programming process.

2. Planning, Programing and Budgeting Execution System (PPBES). Programing and budgeting for NDI pose special problems. Because of the brevity of the NDI acquisition process, the standard PPBES leadtimes and funding "windows" may restrict the opportunities for rapid procurement and fielding. This can be minimized through careful advanced planning and, in the case of urgent requirements, reprograming techniques.

Figure III

REQUIREMENTS/ TECHNICAL BASE ACTIVITIES PROOF OF PRINCIPLE	DEVELOPMENT PROVEOUT	PRODUCTION & DEPLOYMENT PHASE	POST PRODUCTION
BEGINS Prepar- tion of O&O Plan (TRADOC)	BEGINS: Milestone I Approval of Acquisition Strategy	BEGINS: Hardware Availability Date Established	BEGINS: Initial Product Run Ends
ENDS: Tentative decision that NDI can/cannot satisfy requirements	ENDS: Milestone III Approval	ENDS: First Unit Equipped	ENDS: Materiel Requirements de- clared Cancelled or Obsolete

RDTE \$ FINANCES ALL ACTIVITIES  
LISTED BELOW

1. Formulating requirements document
2. Drafting program management documents
3. Preparing independent evaluation plan
4. Conducting user/Market Investigation
5. Contact the HQ USASAC (AMSAC-MI) for assistance in identifying potential foreign NDIs.
6. Preparing purchase description; technical data package, including operators/maintenance manuals; DMWRS; new equipment training plan and other ILS requirements.
7. Preparing TMDE plan; materiel fielding plan; prototype test program sets; training aids, etc.
8. Purchase/Lease of sufficient NDI candidates required to conduct test/evaluation of same and cost associated with the test/evaluation, such as--
  - a. Modification of NDI
  - b. Purchase of specifications; manufacturers publications; repair parts; special tools/equipment required for test/evaluation
  - c. Transport of NDI to/from test site
  - d. Training/salaries/TDY of test and evaluation personnel

1. QUANTITY  
PROCUREMENT

- a. Investment-type end items
  - (1) PA Hardware line \$- for use by OMA mission users
  - (2) PA PBS PIF \$- for use by AIF user not under ACP
  - (3) RDTE \$- for continuing RDTE activities
  - (4) AIF \$- for use by AIF users operating under ACP
- b. Expense type end items Stock Fund \$ (Army/Defense) for sale to users

## 2. PRODUCTION ENGINEERING PROJECT

End Item is In-Production

- a. Investment End Item -PA Hardware Line \$
- b. Expense End Item -OMA 7S

## 3. PRODUCTION IMPROVEMENT PROJECT

-FIRST PHASE

End item is out of production

-Investment-type End Item OMA 7S \$

-Expense-type End Item OMA 7S \$

17.43

17

## NONDEVELOPMENTAL ITEMS

- |   |   |                            |
|---|---|----------------------------|
| e. Maintenance and restoration of leased items for return to vendor                       | a. Developmental PIP  | RDTE                       |
| f. Replacement of leased items which cannot be economically restored for return to vendor | b. Non-Developmental PIP In-Production Investment-type End Item | Out-of-production End Item |
|   | -PA Hardware Line \$  | -OMA 7S \$                 |
|   | Expense-type End Item   | Expense-type End Item      |
|   | -OMA 7S \$  | -OMA 7S \$                 |

17.44



## RELIABILITY NDI MARKET INVESTIGATION CRITERIA

RELIABILITY PROGRAM TASKS	NDI CATEGORY		
	A	B	*
Management			
Reliability Program Plans	E	P	P
Computer Resources Management Plan	E	E	P
Review Schedule	E	E	P
GFE Requirements and Control	E	E	P
Subcontractor and Supplier Reqs and Control	E	E	P
Training and Indoctrination	E	E	P
Engineering Change Control	P	P	P
Engineering			
Mission Profile Analysis	E	P	P
Environmental Profile Analysis	E	E	P
Quantitative Requirements Established	E	P	P
Block Diagrams/Mathematical Models	E	E	P
Numerical Allocations	E	E	P
Reliability Predictions	E	E	P
Life Cycle Cost Analysis	E	E	P
Tradeoff Studies	E	E	P
Reliability Growth and Assessment	E	E	P
Failure Mode, Effects and Criticality Analysis	E	E	P
Electrical and Mechanical Stress Analysis	E	E	P
Parts Derating	E	E	P
Worst Case Analyses	E	E	P
Sneak Circuit Analyses	E	E	P
Thermal Surveys	E	E	P
Shock and Vibration Analyses	E	E	P
Fault Detection and Localization Analyses	E	E	P
Fault Tree Analysis	E	E	P
Accessibility for Maintenance Analyses	E	E	P
Root Cause Analysis of Failures	E	E	P
Spares Reliability	P	P	P
Effects of Storage, Packaging, Transportation, Handling, and Maintenance	E	E	P
Design Practices and Standardization	E	E	E
Design Review Program	E	P	P
Design Specifications	E	P	P
Parts and Materials			
Nonstandard Parts Qualification	E	E	P
Parts Specification	E	E	P
Vendor Surveillance/Monitoring	E	E	P

17.45

## RELIABILITY NDI MARKET INVESTIGATION CRITERIA

Test Program			
Integrated Test Plan	E	E	P
Development Tests	E	E	P
Demonstration (Reliability, Maintainability) Tests	E	E	P
Qualification Tests (Environmentals)	E	E	P
Screening	E	E	P
Acceptance Tests	P	P	P
Data Collection, Analysis and Corrective Action			
Program Plan	E	E	P
Data Collection	P	P	P
Recurrence Control	P	P	P
Data Storage and Retrieval System	E	E	E
Failure Summaries	E	P	P
In-Service Assessment Plan	E	E	P

MI WILL EVALUATE EACH RELIABILITY PROGRAM TASK. SOURCE SELECTION WILL BE BASED ON HOW EACH CONTRACTOR RESPONDS TO THESE AREAS. SOME TASKS MUST BE PERFORMED DEPENDING ON NDI CATEGORY AND WILL BE PART OF THE SOLICITATION DOCUMENT

EVALUATE - E

PERFORM - P

\* THIRD LEVEL OF EFFORT (INTEGRATION OF COMPONENTS)

## USASAC FOREIGN EQUIPMENT ROLE IN THE ACQUISITION PROCESS

1. USASAC, with assistance from multiple sources, maintains a continuously updated market surveillance data base to identify foreign materiel.
2. TRADOC provides an O&O Plan to AMC and USASAC, initiating a market investigation (MI). USASAC's Directorate for International Industrial Cooperation (AMSAC-MI) prepares a preliminary report from information in the data base and submits it to the proponent MSC.
3. Concurrently the MSC Program Manager evaluates the O&O Plan and prepares an initial assessment for both the domestic and foreign MI. AMSAC-MI, upon receipt of the request for support from the MSC, along with the initial assessment activates its Phase I worldwide NDI search (Figure B-1).
4. If there are no foreign items identified, the effort will be terminated. If any of the foreign NDI equipment holds promise of meeting the requirements, AMSAC-MI will evaluate the potential candidates. This evaluation, based on available information, will contain descriptions of the potential candidates; provide comparisons of performance parameters with the requirements; indicate the status of the foreign items, i.e., development, production, or fielded; and provide unit cost information. This evaluation will be provided to the appropriate agencies (DA, AMC, MSC, TRADOC, and Logistics Evaluation Agency).
5. If review by the MSC Program Manager is favorable AMSAC-MI will request the materiel proponent to schedule and chair a Special Evaluation Review (SER) on the items. The SER members may recommend not accepting a candidate and the effort is terminated. If the recommendation is to conduct further testing and evaluation, the IME component of the AMSAC-MI, co-located with TECOM, will manage a Phase II effort provided funding is made available. Funding resources can be provided by OSD/AMC/MS.
6. For those terminated items, receipt of the evaluation report adequately serves to inform the interested Army community that Phase II T&Es are not warranted.

17.47

## USASAC FOREIGN EQUIPMENT ROLE IN THE ACQUISITION PROCESS

7. An alternate method for initiating an evaluation may be through foreign liaison officers, foreign unsolicited proposals, and other sources that identify items that may be needed by the US Army. Inputs from these sources should be addressed to the Commander, USASAC, ATTN: AMSAC-MI, and contain enough information to enable TRADOC to determine if there is an Army requirement. If there is no requirement, the effort would be ordinarily terminated. However, if there is a need, but no approved requirements document, a requirements document and appropriate supporting documentation will have to be prepared and then a foreign capability search will be conducted to identify other potential candidates.

8. If the recommendation of the Phase I SER is to continue into a Phase II test/evaluation, in support of the next decision point, the IME component will coordinate that effort (Figure B-2). A TIWG (DA Pam 70-11) will be formed and chaired by the materiel proponent. Additionally, if significant information is available on a foreign item and a requirement exists, USASAC may direct the initiation of a Phase II test/evaluation.

9. As a part of Phase II, foreign governments or industries will be contacted to apprise them of US interest and to determine if the foreign governments or industries would be willing to cooperate in the program; draft IEPs will be prepared by the appropriate evaluating agencies and will be coordinated with the members of the TIWG. In the event that IEPs exist for a US development for the same requirement, the IEPs will be reviewed, updated, and used in lieu of preparing new IEPs. The IEPs will be used to identify the data requirements. Based on a review of the data, a determination will be made as to whether an on-site visit to the foreign country may be necessary.

10. Finalized IEPs and the results of the data search will be presented to the TIWG for determination as to whether the data is sufficient to enable the evaluators to prepare their IERs. If the data is adequate, the IERs will be prepared. If data gaps exist, test items will be obtained from the foreign source by way of loan, lease, or purchase; test plans prepared, and limited technical and/or user test conducted. If both technical and user tests are required, they normally will be integrated or combined. Upon completion of tests, the IERs will be prepared and an IPR scheduled by the materiel proponent.

17.48

## USASAC FOREIGN EQUIPMENT ROLE IN THE ACQUISITION PROCESS

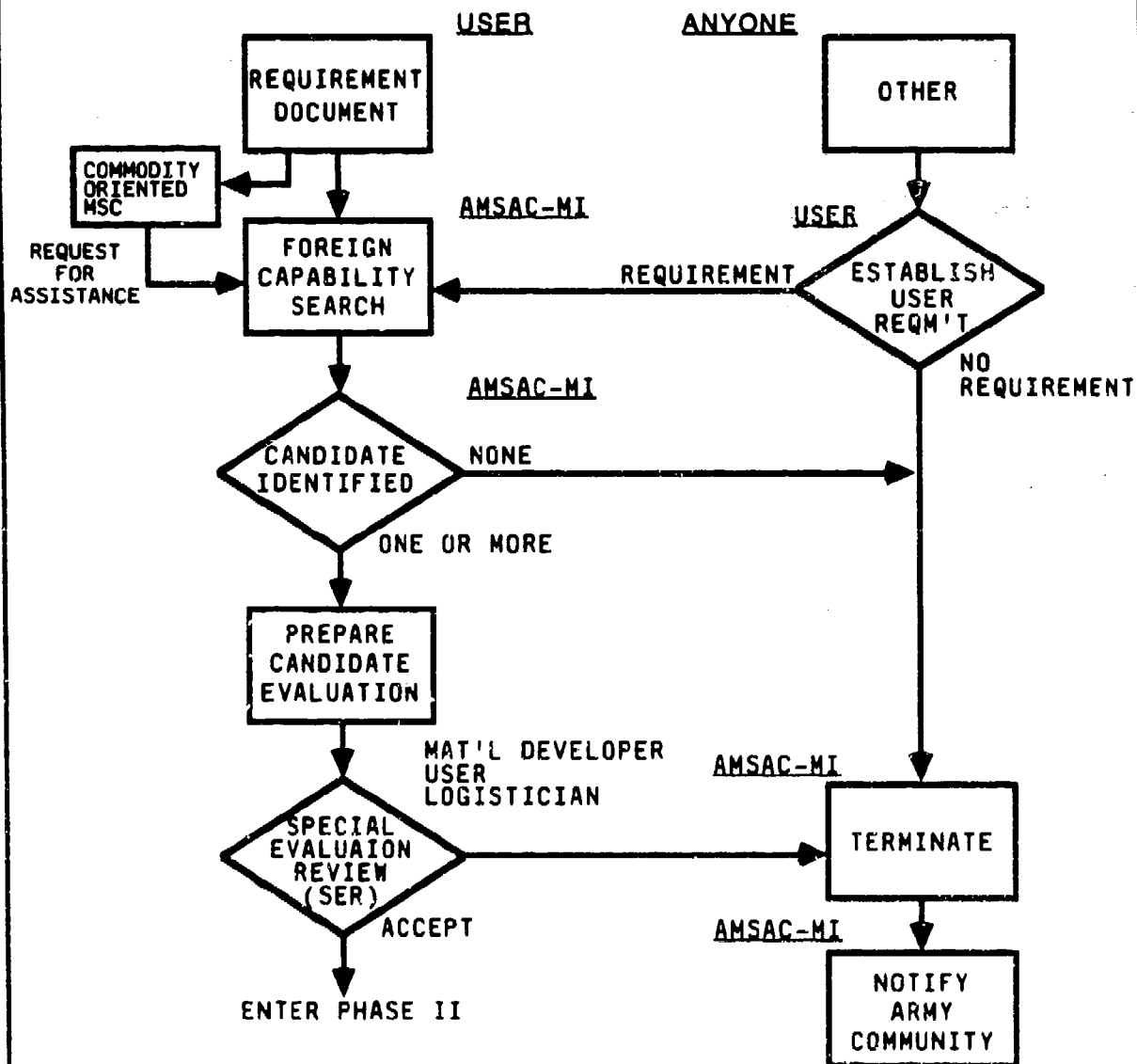
11. The IPR determines future actions appropriate for both domestic and foreign items. The IPR recommendation may be:

- (1) To accept the item.
- (2) Perform further test and evaluation.
- (3) To reject all items and terminate the effort.
- (4) To continue to monitor the foreign development for items where deficiencies were identified.
- (5) Enter into the next phase of the system acquisition cycle.

17.49

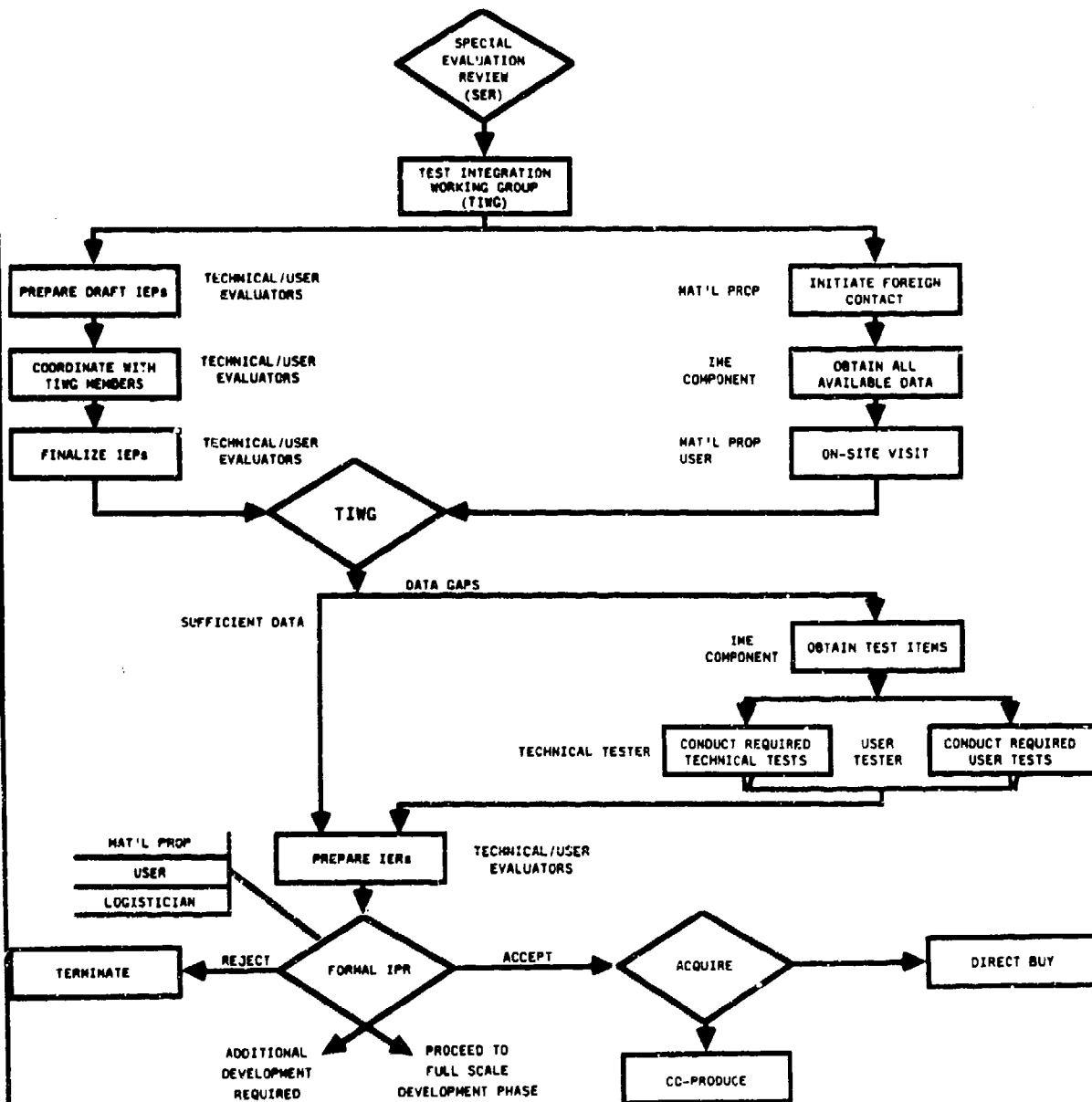
Figure B-1

## PHASE I



17.50

Figure B-2



17.51

17.52

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## **Chapter 18**

### **TYPE CLASSIFICATION**

## Chapter Guide

Type Classification (TC) is the Army method for identifying the degree of acceptability of a materiel item for its intended mission. TC is an integral part of the Milestone III decision process (IPR or ASARC), and as such is not a separate process. It is essentially a certification for Milestone III decisions complying with OSD's requirement for a determination that an item is "acceptable for service use" prior to expenditure of procurement funds. AR 70-61 contains the policy, guidance, and procedures for TC. The decision to TC signifies that a materiel item or system is ready to be produced and fielded by Army units. It further signifies that the supportability, reliability, availability, maintainability, and safety of the item meet Army requirements. TC is applicable to nonexpendable end-items which are issued separately for use by Army units in the field and to certain high density military-type expendables (all ammunition [Class V] and, for example, combat rations, intrusion detectors, and barrier equipment).

TC designations are--

STANDARD (STD) for a system/item which is determined to be acceptable for the mission intended, supportable in its intended environment, and acceptable for introduction into the Army inventory; or which is capable of being made acceptable without further development effort, prior to fielding. It also applies to items that have been replaced by new STD items but are still acceptable for the intended mission.

CONTINGENCY (CON) for a system/item which no longer fully satisfies Army operational requirements but which has residual value for use in training or as a mission essential contingency item for Reserve Components.

OBSOLETE (OBS) for a system/item which is no longer required or acceptable for Army use.

LIMITED PROCUREMENT (LP) is an additional designation available for use under exceptional circumstances. It is used when a materiel item is required for special use for a limited time with a specific quantity procured, without further intent of additional procurement of the item under this classification. Items designated for LP TC are those which do not qualify for adoption as STD, but are required for one of the following purposes:

- LP - Urgent (LPU) - to meet urgent operational requirements which cannot be satisfied by an item type classified STD. Applies to both developmental and nondevelopmental items.

## Chapter Guide

LP - Test (LPT) - to obtain production items for test by the establishment of a pilot production line, when the Materiel Acquisition Decision Process (MADP) decision authority approves conduct of additional tests as a prerequisite to TC STD. LPT is normally applicable only to developmental items.

GENERIC is used only for NDI. It is essentially the first step in a two-step process when make and model are not initially known. In this situation, NDI may be type classified GENERIC prior to solicitation, based on performance specifications or a functional purchase description. The recommendation for TC GENERIC must cover all criteria required by TC STD, state rationale for omissions or deficiencies and outline plans (including estimated timeframe) for meeting that criteria. The second step is TC STD and must be accomplished when a manufacturer is selected, all testing procedures and acceptance criteria are satisfied, and the make and model number are identified with the item. At this point, all prerequisites imposed by TC STD must have been met.

## NOTE

## 18.2

Low rate initial production is becoming an essential part of most major programs. It will be used to verify the production process, provide continuity of production, utilize hard production tooling early and prove out the production methodology prior to the full rate production decision. It is planned to authorize a separate designation (TC-LRP) to cover that situation; however, until TC-LRP is approved in the update of AR 70-61, it will be necessary to coordinate with the appropriate resource management and TC proponents on a case-by-case basis to determine what designation will be used when this situation exists.

## TYPE CLASSIFICATION AND PROCUREMENT

1. Items otherwise ready to be type classified will not be unless procurement is planned within the current POM period. An IPR may be held to determine eligibility for TC and to authorize the materiel developer to unilaterally TC when procurement is planned.

## Chapter Guide

2. Normally, materiel will be completely type classified prior to procurement of production items. When justified, HQDA (appropriate ODCSRDA hardware directorate) may authorize the commitment of appropriated funds for the procurement of long-lead-time components that the materiel developer (MATDEV) considers necessary prior to eligibility of the end-item for TC. Approval does not constitute a waiver of TC.

## TYPE CLASSIFICATION AND REPROCUREMENT

Reprocured items, namely those required after initial buys and fielding are achieved, will not require separate TC unless they have been so modified or improved as to meet the criteria for a product improvement as shown in the next paragraph.

## TYPE CLASSIFICATION AS A RESULT OF PRODUCT IMPROVEMENT

An improved or modified item will be separately type classified when the modification or conversion--

1. Necessitates special management because it incorporates or requires stockage of major components, such as engines or consumable item that are different from those required for the basic item; or it will not be applied to the total inventory quantity.
2. Changes functional and physical characteristics affecting the quantity of personnel and/or associated support items of equipment (ASIOE) required to support the end-item.
3. Changes safety and health characteristics.
4. Causes personnel changes (new MOSs are identified).
5. Requires new Basis of Issue Plan (BOIP) in accordance with AR 71-2.
6. Requires changes to ROC.

The PM/MSD will determine whether or not separate TC, as a distinct new item, will be required for the product-improved item. This determination will be noted in the document that transmits the product improvement proposal (PIP) to HQDA.

## Chapter Guide

## TYPE CLASSIFICATION AND NONDEVELOPMENTAL ITEMS (NDI)

All NDI are required to be type classified unless specifically exempt (see end of chapter).

Chapter 17 provides comprehensive guidance on NDI.

## TYPE CLASSIFICATION AND CATALOGING ACTIVITIES

1. AMC PM/MSC submits request for National Stock Number (NSN) no later than 90 days prior to IPR where TC decision is planned.
2. Upon approval of TC, AMC PM/MSC requests a Standard Line Item Number (SLIN) from AMC Catalog Data Activity (CDA).
3. Within 45 days after TC approval the AMC PM/MSC submits the materiel status record (MSR) to HQ AMC (AMCDE-PA).
4. Copies of requests for NSN and SLIN will be provided to the U.S. Army Equipment Authorization Review Activity (USAEARA) (AMXGA-C) and HQDA (DAMO-FDR).

## 18.4

## TYPE CLASSIFICATION AND ACCELERATED/DIRECTED ACQUISITIONS

1. The HQDA tasking document for an accelerated/directed action program will constitute approval for LPU. Separate TC documentation to obtain HQDA approval is not required. The PM/MSC will record the directed LPU action in the MSR.
2. It is recognized that accelerated/directed acquisition programs may require HQDA approval of deferral of BOIP/Qualitative and Quantitative Personnel Requirements Information (QQPRI) prior to TC. Deferral requests will be submitted to HQDA through HQ AMC (AMCDE-PA) and HQ TRADOC (ATCD). Deferral requests shall include--
  - a. Title of ROC, CARDS reference number, and ZLIN.
  - b. Rationale for TC prior to approved BOIP/QQPRI.
  - c. Potential negative impact on establishing support capability and training base.

## Chapter Guide

- d. Projected dates that BOIP/QQPRI will be submitted to HQDA for approval.
- e. When request for deferral is initiated, information copies at each level of processing will be provided HQDA (DAMO-FDR) and AMC (AMXEA-MC, AMXMO-MD, and AMCDE-PA).

## Responsibilities

- AMC:
- Prepare initial TC recommendation.
  - Ensure that BOIP Feeder Data (BOIPFD) and QQPRI input are submitted.
  - Coordinate the TC recommendation with HQDA (DAMO-FDR) and interested AMC agencies and activities.
  - Approve the TC recommendation or forward, when required, to HQDA for HQDA or ASARC approval.
  - Record the TC in the Materiel Status Report.
  - Forward information for inclusion in SB 700-20.
  - Establish procedures for review for reclassification action.
- TRADOC:
- Review and comment on the TC recommendation.
  - Provide final BOIP and QQPRI to HQDA.

18.5

## Chapter Proponent Offices

AMC: AMCDE-PA

TRADOC: ATCD-E

### References

The following documentation has a direct impact on the procedures used for TC:

DA: AR 70-1  
AR 70-2  
AR 70-61

AMC: AMC-R 70-5

Also see the following chapters in this handbook:

Chapter 4 - Required Operational Capability/Joint Service Operational Requirement.

5 - Training Device Requirements.

14 - Basis of Issue Plan and Qualitative and Quantitative Personnel Requirements Information.

## 18.6

### Time Constraints

TC as such, except for LP, has no time constraints but is wholly dependent on the progress made in the development of the system/item to be type classified and the major milestone decision process (ASARC/IPR).

### Procedure

Detailed procedures for TC are described on the following pages in the form of descriptive paragraphs on the left-hand page and corresponding flow charts on the facing page.

### Process Outline

1. TC is the Army's certification that an item is ready and acceptable for use by the Army. This certification is accomplished via the Milestone III decision process. The prerequisites for TC are the prerequisites for effective and efficient fielding of a new system. TC prerequisites are --

## Process Outline

- a. Approved requirements document.
- b. HQDA-approved BOIP for each new LIN to be assigned, unless specifically exempt by AR 71-2.
- c. ASARC for DOD major programs and DAPs or an IPR for other items.
- d. User test and evaluation determination of acceptability and supportability.
- e. Item acceptable and supportable for intended mission or can be made so prior to fielding without further development effort.
- f. TMDE approved for acquisition by Army Central TMDE Activity.
- g. HQDA-approved frequency allocation for systems/items which use electromagnetic spectrum.
- h. Environmental quality design aspects have been met or regulatory approval for waiver has been received.
- i. Transportability approval obtained from the Military Traffic Management Command (MTMC).
- j. Request for NSN and LIN submitted to CDA.
- k. Complete Technical Data Package (TDP) suitable for procurement, if required.

## NOTE

Absence of an adequate Technical Data Package is sufficient justification for a TDP if approved acquisition strategy for a TDP to be available for procurement.

- l. HQDA-approved final MOS decision based on the QQPRI.
- m. Nuclear Regulatory Commission (NRC) license on HQDA authorization, as appropriate, for those systems/items containing radioactive materials.
- n. Safety and health hazards are adequately controlled.



## Process Outline

o. Development of a System Safety Risk Assessment and Safety and Health Data Sheet.

p. Development of Range Safety Data.

q. Approval of DOD Final Hazard Classification for Explosive Items.

2. When preparing the Milestone III supporting documentation, the AMC proponent determines that the materiel system/item is acceptable for Army use. This is done by determining that the prerequisites described in paragraph 1 have been satisfied and that the subject systems will satisfy the approved requirement. The TC recommendation is included in the Decision Coordinating Paper (DCP) and supported by a separate TC recommendation (see format at page 18.12.)

3. The proposed TC recommendation is coordinated, as part of the Milestone III review package, with HQ AMC (AMCDE-PA) and other interested AMC agencies and activities (see chapter 15.)

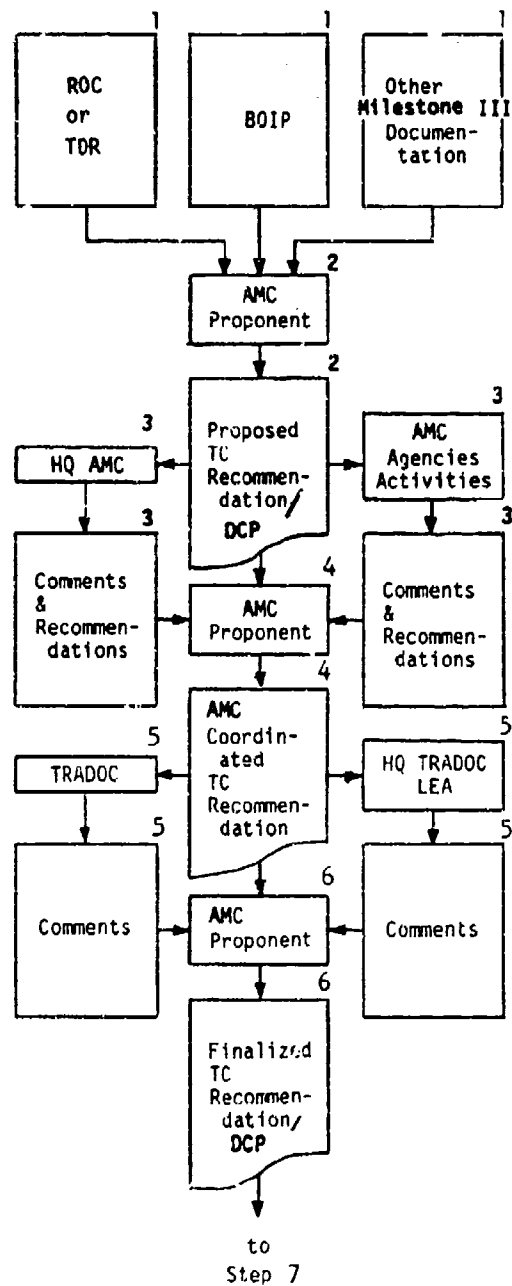
## 18.8

4. Based on the coordination, the AMC proponent finalizes AMC's milestone position, including the updated TC recommendation.

5. Copies of the updated AMC TC recommendation, as part of the Milestone III review package, are provided to HQ TRADOC and the TRADOC Materiel Evaluation Committee (TMEC) members, the proponent TRAJOC school, the Logistics Evaluation Agency (LEA), and other members and observers of the IPR/ASARC for review, assessment, and recommendation.

6. Based on the comments received from TRADOC, LEA, and other interested agencies, the AMC proponent prepares the finalized TC recommendation for the Milestone III review.

## Process Outline



18.9

## Process Outline

7. For major systems/items, TC authority rests with the Army Systems Acquisition Review Council (ASARC). The AMC proponent forwards the TC recommendations, via HQ AMC (AMCDE-PA), to HQDA (ODCSRDA) for submission to the ASARC III for review and approval.

## NOTE

If the ASARC does not reclassify replaced system/item to CON or OBS at the time of the TC of a new system/item, reclassification OBS is done by the AMC MSC.

8. For nonmajor systems/items, the TC recommendation is reviewed as part of the Milestone III IPR. If approval authority has been assigned to the AMC proponent, approval by the IPR constitutes TC approval.

## NOTE

When IPR agreement cannot be reached and the issues cannot be resolved by the IPR members' chain of command, the TC recommendation, along with any dissenting views, is forwarded to HQDA, appropriate ODCSRDA hardware directorate, for final resolution.

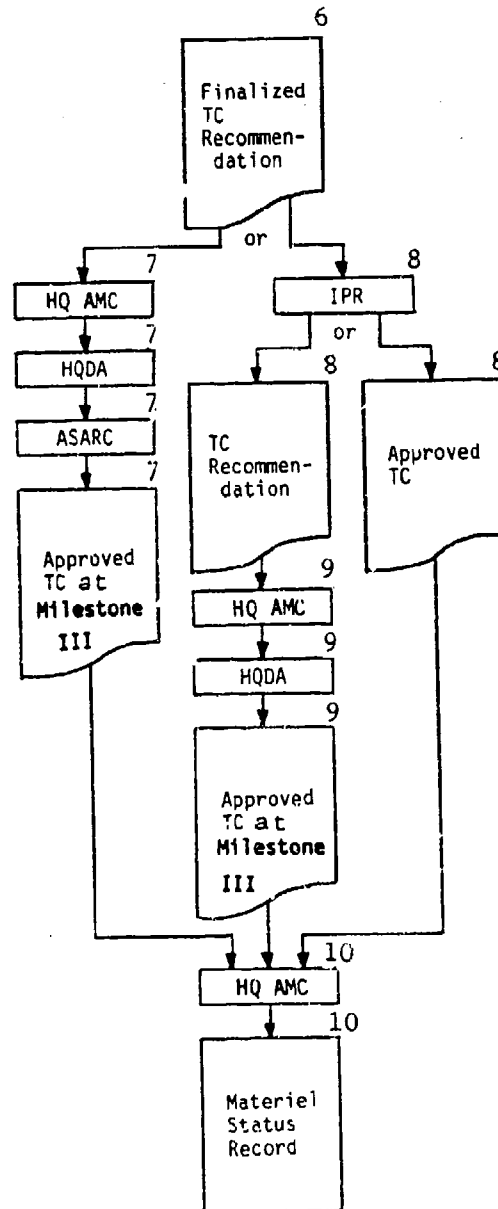
9. For nonmajor systems/items where IPR approval authority has been retained by either HQDA or HQ, AMC, the IPR recommendation on TC is forwarded, with the other IPR documentation via the normal command channels, to the appropriate HQ for review and approval as a part of the Milestone approval process.

## NOTE

One major objective of the Army Streamlined Acquisition Process (ASAP) is to achieve TC STD at Milestone III by proving out the production process on a "hard-tool" prototype(s) during the Development-Proveout Phase. When you have a system that requires a period of low rate initial production (LRIP), TC-STD cannot be accomplished at Milestone III. In that situation, TC-STD will be achieved at the full rate production decision point. Refer to NOTE under TC designations, page 18.2.

10. Approved TC actions are forwarded to HQ AMC (AMCDE-PA) within 45 days following the date of the decision for recording in the MSR and to HQ TRADOC (mission area directorate).

## Process Outline



18.11

## Process Outline

## SUGGESTED FORMAT FOR TYPE CLASSIFICATION (TC) RECOMMENDATION

1. A MADP review was held on ..... resulting in a determination that ..... (system/item) .....

a. Is (not)(not yet)(no longer) acceptable for the mission intended.

b. Does (not) meet regulatory prerequisites for (entry into)(retention) in the Army inventory.

c. (Applicable to LP only) is required, in limited quantity (....) for a limited time (....), for additional operational testing (or an urgent operational requirement described), as follows: .....

d. (Is)(Is not) safe for all aspects of use (Safety and Health Data Sheet attached).

e. (Is)(Is not) logistically supportable in its intended environment.

2. Accordingly, recommend the item/system (not) be type (re)classified from ... (type classification) ..... to ..... (proposed type classification) .....

3. Replacement information: (if not applicable, enter "none") The item/ system (replaces) (is replaced by) LIN ....., NSN ..... which is (not) being recommended for type re(classification) as part of this action.

4. Specific end item recommended for type classification/reclassification: (Multiple items may be listed sequentially by item or by data element). Provide complete information for each separately issued end item, including special tools, all test, measurement and diagnostic equipment/other support equipment.

a. Federal Item Identification.

## Process Outline

- b. Development Line Item Number (ZLIN).
  - c. Standard Line Item Number (SLIN).
  - d. National Stock Number (NSN).
  - e. Reportable Item Control Code (RICC).
  - f. Type (re)classification from ..... to .....
  - g. BOIP number (STD only).
  - h. Requirement (CARDS no., ROC, TELER, other) for LP and STD type classification only)
5. \*Major end items recommended for materiel condition reporting are
- \*NOTE: Identify, by LIN and nomenclature; state whether the line is a component of a major system identified in AR 750-40.

## SAFETY AND HEALTH DATA SHEET

Item/System identification: .....

## 1. Safety confirmation letters dated as follows:

- a. Technical test(s) .....
- b. User test(s) .....
- c. Production test(s) .....

2. Item does (does not) contain radioactive materials and (if it does) is properly licensed by (NRC # . . . . . and/or DA Authorization # ....., as appropriate).

3. Item does (does not) contain explosives and (if it does) has the following hazard classifications:

- a. Quantity-Distance Class .....
- b. Storage Compatibility Group .....

18.13

## Process Outline

- c. DOT Class ... ..
- d. DOT Marking ... ..
- e. Conveyor Spacing Distance ... ..

4. Item does (does not) produce potential health hazards (e.g., noise, vibrations, toxicants, radioactive, and laser emissions) to user personnel, maintenance personnel, or other personnel. If it does, indicate Health Hazard Assessment (HHA), or special study performed by the Army Environmental Hygiene Agency and that appropriate corrective actions have been taken.

5. Range safety data (AR 385-52 or AR 385-63) was (will be) finalized (date).

6. If this is a nondevelopmental item:

a. Results of the user/market investigation indicate that all safety and health features and characteristics specified in the requirements document are (are not) commercially available. (List those that are not available and a brief statement of the impact of their nonavailability.)

b. All safety and health features and characteristics that were both specified in the requirements document and verified as available by the user/ market investigation have (have not) been included in the performance specification for the item. (List those that have not been included and provide a brief statement of the impact if they are not included.)

\_\_\_\_\_  
Signature (Safety Director) Date

\_\_\_\_\_  
Signature (Surgeon) Date\*

\* Only required if a TSG approved Health Hazard Assessment Report is not included as an addendum to the Safety and Health Data Sheet.

## TYPE CLASSIFICATION EXEMPTIONS

The following types of items do not require TC. For further details on these exemptions, see AR 70-61.

## Process Outline

- Low density institutional training devices, such as flight simulators which will be fully contractor supported during the entire life cycle.
- Military decorations, medals, and heraldic flags.
- Commercial construction materials, excluding mechanical, electro mechanical, electrical, and electronic items.
- Nonmilitary administrative items under GSA purview.
- DLA items used only by JTA/TDA units.
- Commercial items required by JTA/TDA units only.
- Components of end items, if BOI as separate items is restricted to schools, training centers, labs, depots, etc.
- Expendable items except Class V ammunition, individual equipment, and selected high density military items (e.g., combat rations, barrier materials, etc.).
- Nonstandard materiel for support of allies, with no application to the U.S. Army.
- Nonstandard materiel with no application to the U.S. Army, but for which the Army is DOD item manager or has life-cycle support responsibilities.
- Items procured for operation and support only by contractors, not needing Army Logistics Support.
- Items procured with nonappropriated funds.
- Items procured only for DOD Civil Defense, except those used to protect DOD personnel or to quell disturbances.
- ADP items (AR 18-1) unless item is to be supported through Army logistic system.
- Ammunition used in acceptance testing.
- Locally fabricated training aids less than \$300 a piece.

18.15



## Process Outline

- All explosive ordnance disposal (EOD) tools and equipment developed for and used by qualified EPD personnel.
- Special tools that automatically assume TC of item they support.
- Commercial training devices under a commercial training devices requirement document.
- Nonstandard, non-military end items procured for operations and support of Armed Forces Radio and Television Service (AFRTS).
- Equipment/systems required by the U.S. Army Information Systems Command (ISC) which are used by strategic TDA/JTA units. (Exemption delegated to CG, USISC).
- Sets, Kits, Outfits (SKO) with a sole basis of issue restricted to TDA/JTA HQDA approved school/training center laboratories, or maintenance/test facility.

NOTE: Notwithstanding TC exemption, items must comply with safety and health requirements set forth in paragraph 1-6g AR 70-61.

## **Chapter 19**

# **PROGRAM MANAGEMENT CONTROL SYSTEM (PMCS)**

## Chapter Guide

The Program Management Control System (PMCS) consists of management actions in a single integrated process to enhance program stability and control costs. The PMCS is designed to define program objectives, increase discipline in the materiel acquisition process, track program execution against the approved AS, and provide increased visibility of program trends and early identification of decision alternatives. The components of this integrated process are:

**Program Directive (PD).** The basic document for initiating and changing programs. The PD establishes the program cost/schedule/performance/production capacity/ILS/quantity baselines, goals, and thresholds. The PD provides a clear description of the DA-approved program which is consistent with the approved AS, current funded program requirements, the President's budget, the Army Program Objective Memorandum (POM), and the budget estimate submit.

**PD Executive Summary (EXSUM).** Vehicle for formal modifications to the PD. The EXSUM is a one-page extract of the PD designed to expedite the processing and approval of attached PD changes and to substitute for the full-sized PD during the HQDA decisionmaking process. The PD EXSUM is used to transmit program guidance/changes of PMCS programs to HQ AMC and the PM. All changes to the PD will be conveyed by a PD EXSUM with a change notice attached.

**PMCS Monthly Program Status Report (PSR).** Identifies significant progress and actual or potential problem areas in cost (including operating and support costs), schedule, quantity, technical performance, production, MANPRINT, and logistics. It also displays potential cost and performance variances and changes in the operating and support costs and logistic support resulting from budgetary, schedule, or technical changes reported for the month. (See Letter of Instruction - Manually Prepared Program Status Report (PSR)).

19.1

## Responsibilities

AMC: Prepare the PMCS documentation in coordination with appropriate TRADOC elements and OTEA.

Review and recommend approval of the PD.

Prepare, review, and approve the PMCS PSRs (monthly or quarterly).

OTEA: Provide coordination with the PM to ensure that the major aspects of testing are reflected in the PD.

Assure commitments in the PD can be met within the agreed-upon schedule.

Provide operational testing/evaluation impact on proposed changes.

TRADOC: Provide coordination with the PM to ensure that the PD reflects current Army user requirements and provide a user impact statement as required on proposed PD changes.

HQDA: Prepare the PD EXSUM and notify HQ AMC of potential changes to a PD.

Maintain overall management responsibility for PMCS.

## 19.2

## Chapter Proponent Offices

AMC: AMCDE-PI

TRADOC: SYSTEM-TRASSO

HQDA: DAMA-RA

OTEA: CSTE-ZA

### References

The following documents establish the procedures used in the PMCS: Nov 81 AMC-TRADOC Memorandum of Understanding and draft AR 1000-XX.

Also see chapter 7, Acquisition Strategy.

### Time Constraints

PMCS documentation is submitted in accordance with the following schedule:

The PD is initially submitted within 30 workdays of the date a system is designated for inclusion under the PMCS. The PD is updated annually within 30 workdays after submission of the President's budget and at other milestone decisions or program reviews (as required).

The PMCS PSR is submitted monthly or quarterly (as determined by the Assistant Secretary of the Army (Research, Development, and Acquisition)). The monthly PSR is submitted by the 7th day of each month; the quarterly PSRs are submitted by the 7th day of the month following the end of the designated reporting quarter.

The PD EXSUM will be prepared and coordinated with the ARSTAF and forwarded to HQ AMC within 30 working days after notification of a decision or the official submission of the President's budget.

### Procedure

Detailed procedures used for the PMCS are described on the following pages in the form of descriptive paragraphs on the left-hand pages and corresponding flow charts on the facing pages.

Where appropriate, a "NOTE" has been added to the end of a paragraph to highlight options to the action called for in the paragraph or to provide some other insight into the action described.

## Process Outline

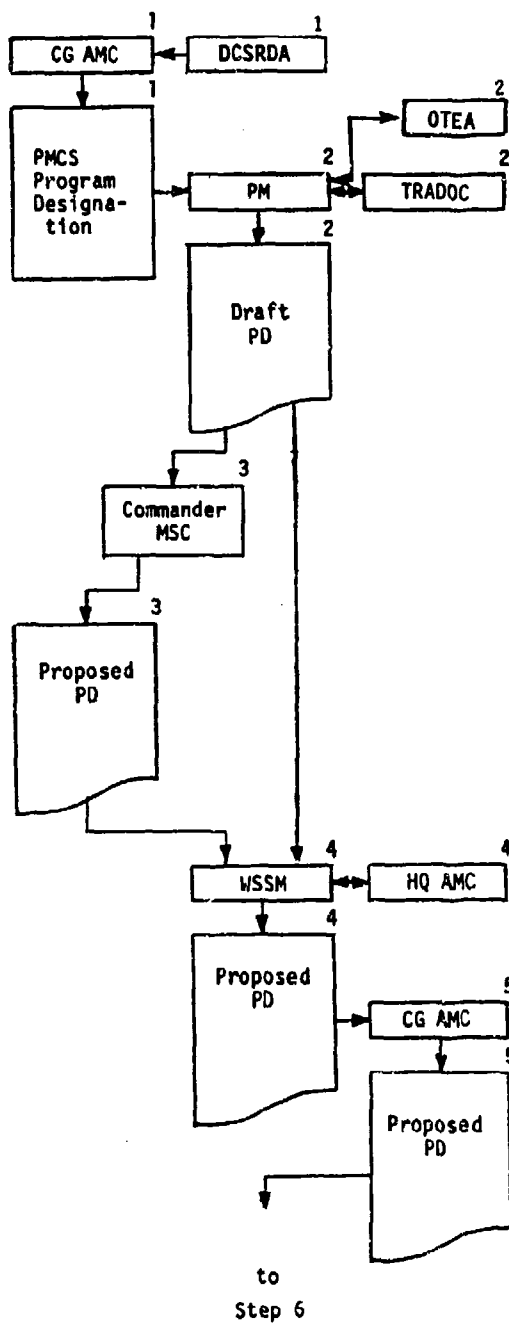
1. All DOD major programs, DAPs, and Selected Acquisition Report (SAR) Programs will be included in PMCS. Other programs may be designated by the DCSRDA after initial review of the O&O Plan or when subsequent requirements document and/or the progress of the program indicates a need for the visibility PMCS will provide at HQDA. Designation is made by letter which also establishes the date for the initial PD submittal, normally 30 workdays after designation.
2. The PM is responsible for drafting the PD (from the SCP or DCP with ASARC/JRMB decisions). During the drafting of the PD, the PM coordinates with the appropriate TRADOC elements and OTEA to ensure that the PD reflects current Army requirements.
3. Once complete, the draft PD is forwarded to the MSC commander with materiel acquisition/readiness responsibility for review and concurrence.

## NOTE

In cases where the PM reports directly to HQ AMC, no prior coordination is required except where an MSC has a direct program responsibility.

4. Once the MSC commander concurs, the proposed draft PD is forwarded to the appropriate Weapon System Staff Manager (WSSM) for staffing within HQ AMC.
5. After HQ AMC staffing, the draft PD is submitted to the CG or Deputy CG (RDA), AMC, for review and concurrence.

# Process Outline



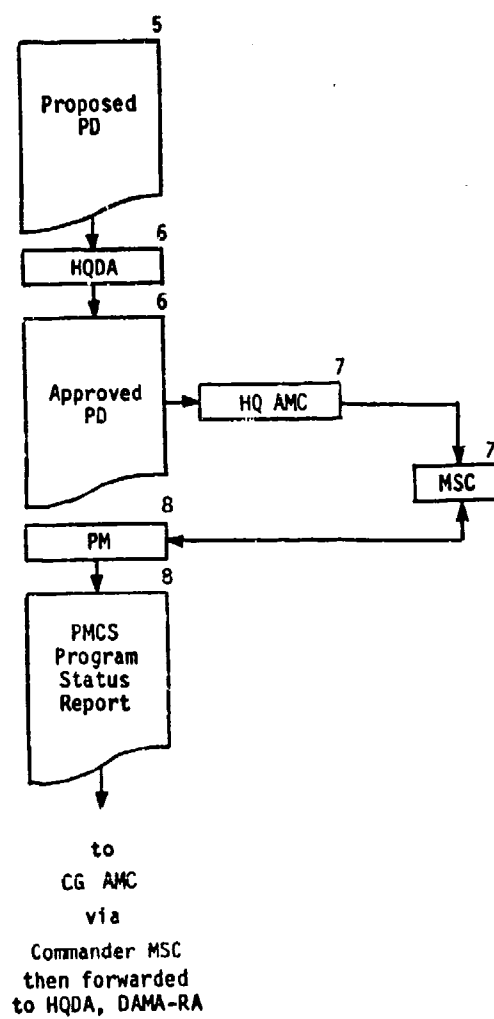
19.5

## Process Outline

6. After review and approval by CG or Deputy CG, AMC, the draft PD is submitted to HQDA for final review and approval.
7. After review, approval, and signature of the PD by HQDA, it is forwarded to the PM through HQ AMC and the MSC.
8. Once the PD is approved, the PM is responsible for the preparation of the PMCS PSR. The monthly or quarterly PMCS PSRs are submitted through the MSC to HQ AMC for approval and forwarded to HQDA, DAMA-PP, for use in monthly Two-Star and Joint HQDA/AMC Reviews.



## Process Outline



19.7

19.8

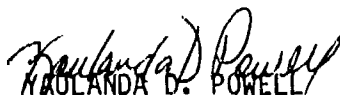
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The proponents of this pamphlet are the Deputy Chief of Staff for Development, Engineering and Acquisition, HQ AMC, and the Deputy Chief of Staff for Combat Developments, HQ TRADOC. Users are invited to send comments on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the Commander, U.S. Army Materiel Command, ATTN: AMCDE-PQP, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001, and Commander, U.S. Army Training and Doctrine Command, ATTN: ATCD-ET, Fort Monroe, VA 23651-5000.

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CRDEC, APG, MD 21010-5423	(100)
BRDEC, ATTN: STRBE-HP, Ft. Belvoir, VA 22060-5606	(100)
NATICK, ATTN: STRNC-EML, Natick, MA 01740-5000	(100)
AMC-EUR, APO NY 09333	(5)
US Army Materiel Readiness Support Activity, ATTN: AMXMD-EI, Lexington, KY 40511	(100)
US Army Central TMDE Activity, ATTN: AMXCT-SS, Lexington, KY 40511-5104	(3)
US Army Equipment Authorization and Review Activity, ATTN: AMXEA-MC, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001	(5)

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HEL, ATTN: SLCHE-FS, APG, MD 21005 (10)  
US Army Signals Warfare Center, Warrenton, VA 22186-5100 (10)

DIRECT REPORTING PMs

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PM AAH, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798 (10)  
PM Nuclear Munitions, Dover, NJ 07801-5000 (5)  
PM Army Information Systems, Ft. Belvoir, VA 22060 (5)  
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National Technical Information Service, 5285 Port Royal Road,  
Springfield, VA 22151 (15)

**Appendix A**

**SAMPLE LETTERS FOR REQUIREMENTS DOCUMENTS**

# TRANSMITTAL LETTERS

A

## SAMPLE DRAFT O&O PLAN/JMSNS/ROC/JSOR TRANSMITTAL LETTER

### LETTERHEAD

(Office Symbol)

S:(Suspense date)

Date

SUBJECT: Draft O&O Plan/JMSNS/ROC/JSOR for (name of system)

1. Reference AR 71-9, 20 Feb 87, Materiel Requirements and Objectives.

2. Attached (Encl 1) is the draft O&O Plan/JMSNS/ROC/JSOR for (name of system).

3. A Joint Work Group (JWG) will meet at (location) to develop the final draft (document). The JWG will convene on (from the date of this letter 11 weeks for an O&O Plan or JMSNS and 19 weeks for a ROC or JSOR). Request principle addressees provide comments and attend the JWG. Request copy furnished addressees provide comments if they choose. Request other service addressees response include the appropriate Joint Potential Indicator. All comments are requested by (date 2 weeks before the JWG). Your representative to the JWG must have authority to represent your organization. JWG attendees should be prepared for an intense work schedule to resolve any issues in developing the final draft.

3. This paragraph should contain a brief discussion of the operational testing program (for O&O Plan, ROC, or JSOR). Initial evaluation issues and criteria will be at enclosure 2.

4. The chairman of the JWG will be (name and phone number). (AMC MSC proponent) is requested to appoint the JWG vice-chairman.

(Encls)

(SIGNATURE BLOCK)

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(see over)

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USA ENGR TOPO LAB (ETL-TD-C) (2)  
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TRADOC SCHOOLS (2)

AMC PROPONENET AND AFFECTED MSC'S (2)

DIR

MTMCTEA (MTT-TRG) (2)

CG MCDEC (DO83) (2)

CDR USAF TAC AIR CMD (DRPM) (2)

HQDA (FDR) (FISCO) (2)

CF:

CDR

USAMSAA (AMXSY-CR) (2)

USA LABCOM (AMSLC-TP-PI) (2)

AHS, USA (HSHA-CD) (2)

USA HEALTH SVC COMD (HSC-LO) (2)

USA MED R&D COM (SGRD-ZA) (2)

USA ENVIRON HYGIENE ACCY (2)

AMC (AMDCD-PA) (2)

TCATA (ATCD-MA) (2)

TRADOC ANALYSIS CTR (ATRC) (2)

(see over)

A.2



## TRANSMITTAL LETTERS

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-(file symbol)  
SUBJECT:

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HQDA (DAPE-PSR (2), DALC-SSM-E (2), DAMA-PPM (2),  
DACA-CAM (2), DAMI (2), DAEN-FSP (2), DASG-HCL (2),  
NGB-ARC (2)

TRADOC LO

CNO (OP-98) (2)

HQ USAF (RDQLM) (2)

INDUSTRY (see LOI-Appendix E)

Other Test and Eval Agencies

Other User MACOM

A.3

A

## TRANSMITTAL LETTERS

SAMPLE FINAL DRAFT O&O/JMSNS/ROC/JSOR/TDR FORWARDING LETTER TO HQ TRADOC

(LETTERHEAD)

(Office symbol)

(date)

SUBJECT: Draft (O&O/JMSNS/ROC/JSOR) for (name)

THRU: (CAC, SSC, SSC-NCR, LOGCEN, and HQ AMC)

TO: HQ TRADOC (ATTN: ATCD-ET)

1. Reference: AR 71-9, 20 Feb 87, Materiel Objectives and Requirements.

2. Subject draft O&O/JMSNS/ROC/JSOR/TDR is forwarded for approval.

3. This requirements document was prepared by a JWG which met on (date).

4. This paragraph will contain a brief discussion of the operational testing program.

A.4

3 Encls

1. Document
2. Evaluation Issues and Criteria
3. Industry Coordination

TRADOC SCHOOL COMMANDANT'S  
SIGNATURE BLOCK

CF:

HQ AMC (AMCDE-PA)

HQ TRADOC (ATCD-ET)

# TRANSMITTAL LETTERS

A

SAMPLE HQ TRADOC TRANSMITTAL LETTER FORWARDING A ROC  
TO HQ AMC FOR APPROVAL

HQ TRADOC LETTERHEAD

ATCD-

S: Suspense Date  
DATE

SUBJECT: Draft Required Operational Capability (ROC) for (Name of  
System)

TO HQ AMC (AMCDE-PA)

1. Reference AR 71-9, 20 Feb 87, Materiel Objectives and Requirements.
2. Subject ROC is forwarded for approval. ROC was approved by  
Commander, TRADOC on (date).
3. Request AMC concurrence by (4 weeks from date of this transmittal  
letter).

1 Encl as

\*NOTE: This letter applies  
only to ROC for IPR level  
programs

SIGNATURE BLOCK  
(DCSCD or AG)

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A.6

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# TRANSMITTAL LETTERS

A

SAMPLE HQ TRADOC TRANSMITTAL LETTER FORWARDING A  
JMSNS TO HQDA FOR APPROVAL

## HQ TRADOC LETTERHEAD

ATCD-

(DATE)

SUBJECT: Proposed Justification for Major System new Start (JMSNS) for  
(name of system)

HQDA (DAMO-FDR)

1. Reference AR 71-9, 20 Feb 87, Materiel Objectives and Requirements.
2. Subject JMSNS is submitted for approval. JMSNS was approved by  
Commander, TRADOC on (date).

1 Encl

(SIGNATURE BLOCK)  
(DCSCD or AG)

A.7

A

## TRANSMITTAL LETTERS

SAMPLE HQ TRADOC TRANSMITTAL LETTER FOR APPROVED O&O PLAN

HQ TRADOC LETTERHEAD

ATCD-

(DATE)

SUBJECT: Operational and Organizational Plan (O&O Plan) for (name of system)

TO SEE DISTRIBUTION

The O&O Plan for (name of system) was approved by Commander, TRADOC on (date). It is forwarded for information or materiel acquisition action as appropriate.

Encl

(SIGNATURE BLOCK)  
(DCSCD or AG)

A.8

DISTRIBUTION:

As a minimum distribution will be to all agencies which reviewed the first draft.

\* NOTE: HQ TRADOC action office may distribute the approved O&O Plan or have the TRADOC proponent distribute it.

# TRANSMITTAL LETTERS

A

## SAMPLE HQ TRADOC JMSNS/O&O PLAN/ROC APPROVAL ANNOUNCEMENT LETTER (LETTERHEAD)

(OFFICE SYMBOL)

(DATE)

SUBJECT: ROC or JSOR for (name of system)

SEE DISTRIBUTION

1. Reference: AR 71-9, 20 Feb 87, Materiel Objectives and Requirements.
2. (HQDA, HQ TRADOC or HQ TRADOC and HQ AMC) approved subject (O&O Plan/ROC/JSOR) (Encl) on (date). The following information is applicable to this document.
  - a. System Designation: Major, DAP, or IPR (as appropriate).
  - b. Materiel Developer: AMC.
  - c. Combat Developer: TRADOC (proponent school)
  - d. User Representative: TRADOC (Proponent school)
  - e. Trainer: TRADOC
  - f. Logistician: USALEA
  - g. Operational Tester: USAOTEA or TRADOC (as appropriate).
  - h. CARDS Reference number
3. Subject requirements document is forwarded for information.

FOR THE COMMANDER:

1 Encl

DISTRIBUTION:

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A.9

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## TRANSMITTAL LETTERS

SAMPLE HQ TRADOC TRANSMITTAL LETTER FORWARDING  
ROC OR JSOR TO HQDA FOR APPROVAL

HQ TRADOC LETTERHEAD

ATCD-

DATE

SUBJECT: Proposed Required Operational Capability (ROC) or Joint  
Service Operational Requirement (JSOR) for (name of system)

TO: HQDA (DAMO-FDR)

1. Reference AR 71-9, 20 Feb 87, Materiel Objectives and Requirements.
2. Subject proposed ROC or JSOR is submitted for approval. The proposed ROC or JSOR was approved by Commander, TRADOC on (date).
3. The following recommendations are furnished as a result of coordination with the materiel developer (AMC) and other service (if appropriate):

- a. Program Category: Major or DAP.
- b. Materiel Developer: AMC or other service.
- c. Combat Developer: TRADOC proponent.
- d. User Representative: TRADOC proponent .
- e. Trainor: TRADOC.
- f. Logistician: USALEA or other service.
- g. Operational Testor: USAOTEA, TRADOC, or other service.

1 Encl

SIGNATURE BLOCK  
(DCSCD or AG)

CF:  
TRADOC Proponent  
HQ AMC (AMCDE-PA)  
Other service

A.10



**Appendix B**

**SYSTEM ACQUISITION CHECKLIST**

## SYSTEM ACQUISITION CHECKLIST

**B**

Basic criteria for Materiel Acquisition Decision Process (MADP) reviews is provided in AR 70-1, chapter 4, section II. For additional details, see chapter 15 of this Handbook and AMC-R 70-5, MADP Reviews. These documents provide a checklist of criteria to be considered at major decision points.

**B.1**

**B.2**

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**Appendix C**

**THE PLANNING, PROGRAMING, BUDGETING,  
AND EXECUTION SYSTEM (PPBES)**

**INTRODUCTION:**

The Defense Reorganization Act of 1958 gave the Secretary of Defense (SECDEF) two distinct lines of authority under the policy guidance and direction of the President and the National Security Council. A direct line of command was established through the Joint Chiefs of Staff to the unified and specified commands. A line for administrative control of the military departments and for management of support of military forces was established through the Secretaries of the Military Departments. Through the command line of authority, the SECDEF issues decisions regarding threat appraisal, strategy, and forces. Through the administrative or management line of authority, he issues decisions regarding program goals to support the forces and budgeting of annual funds to support the programs. The process through which these decisions and resultant actions are integrated is the DOD Planning, Programing, and Budgeting System (PPBS).

**CONCEPT:**

The Planning, Programing, Budgeting, and Execution System (PPBES) process can be summarized briefly to--

1. Collect intelligence.
2. Appraise the threat.
3. Based on national policy, develop strategy to meet the threat.
4. Determine force levels to support the strategy.
5. Program weapon systems, manpower and support over a period of time to attain fiscally constrained force levels.
6. Budget annual allocations of funds to procure men and materiel required to carry out programs.
7. Obligate and disburse appropriated funds within the law.

Implicit in the process outlined above are the development of objectives, the conduct of special studies, and research and development of weapon systems and their procurement and support. In fact, all the resources of the Army are drawn upon to formulate its plans, programs, and budgets. As a component of the DOD PPBS, the Army's PPBES facilitates the identification, development, and defense of Army programs and budgets. It also serves as the Army's primary resource management system.

The PPBES is a cyclic process containing four distinct but interrelated phases. These phases are planning, programing, budgeting, and execution. In the first three phases, prior decisions are reexamined and analyzed from the viewpoint of the force structure/national security objectives and current environment (threat, economy, technology, and resource availability). These analyses result in prior decisions being reaffirmed or modified as necessary. The fourth phase, Execution Phase, involves obligating and disbursing funds and may extend over a period of several years.

The AMC PPBES operates as a component of the Army PPBES and is the primary structure for establishing, obtaining, and administering the resources needed to accomplish AMC's mission.

#### PLANNING PHASE:

C.2 This phase examines and analyzes the role and posture of the U.S. and DOD in the world environment with specific emphasis on Presidential policies. This examination involves the preparation of the Joint Strategic Planning Document (JSPD) by the Joint Chiefs of Staff (JCS). The JSPD advises SECDEF on military strategy and force levels for attaining national military objectives and is issued in the beginning of September. Another document influencing force planning positions is the Joint Intelligence Estimate for Planning (JIEP). The JIEP is prepared by DIA and published in mid-March. It focuses on short- and mid-range periods, analyzing the external and internal threats to countries of significance to the U.S. Based on the above guidance and input from the Defense Resource Board (DRB), the SECDEF issues the Defense Guidance (DG) in late January, constituting an authoritative statement on centralized direction for defense planning and programing.

The Army's Planning Phase is initiated with the publication of the Army Strategic Appraisal (ASA) in mid-November. Published by the Strategic Studies Institute of the Army War College, it portrays mid-range trends and addresses strategic and force planning issues 3 to 10 years in the future. This document is prepared for the Army staff but is developed outside the Joint Strategic Planning System and therefore presents an independent, unconstrained view of the future. The Army examines intermediate objectives, policy, and strategy to determine force objectives attainable within expected availability of dollars and manpower. This process, called Macro Analysis, identifies force alternatives for presentation to and decision by the Chief of Staff Army (CSA) and the Secretary of the Army (SA). The selected alternative establishes an objective force that becomes

the subject of The Army Plan (TAP). The Army also publishes the Long-Range Research, Development, and Acquisition Plan (LRRDAP) which translates the goals and objectives contained in TAP into specific research, development, and acquisition programs. The Army uses the LRRDAP to validate priorities and to provide guidance to the Army Staff and MACOMs in developing the POM and Extended Planning Annex (EPA).

The Army planning guidance communicates Army long-range planning guidance and is applicable to the total Army. The document expands on the vision of senior Army leaders and provides the framework for developing functional area and organizational long-range plans. In conjunction with TAP, the document is the basis for the EPA which begins the bridge from planning to programing in PPBES. Army planning guidance enables planners to provide input to joint and combined planning documents. When moving from concepts to fielded systems, the Army planning guidance provides the link that allows planners and developers to take concepts and develop specific plans which move toward reality.

Within the Army's planning framework, AMC develops its command-wide AMC Strategic Long-Range Plan (SLRP) to encompass long-range goals and objectives reaching out two decades. The SLRP addresses broad mission, technical, and functional parameters and various alternative futures confronting the command as it strives to achieve its goals within constrained resources. AMC interface with DA planning includes several specific planning products, both long-range and near-term. This interface includes the DA LRRDAP, the Army Long-Range Logistics Plan (Log 2000), the Extended Planning Annex (EPA) to the Program Objectives Memorandum (POM) and TAP (for which AMC publishes a counterpart in the form of the AMC Guidance). AMC's planning phase entails coordination with other MACOMs in establishing the structure and operational needs which drive the determination of materiel needs. It also draws upon the input of AMC subordinate elements for translating generic capability needs into specific materiel plans, including technological or functional approaches, assessment of resource requirements, and implementation planning.

C. 3

#### PROGRAMING PHASE:

Programing translates planning decisions into a balanced allocation of forces, manpower, materiel, and funds. Prepared in consonance with centralized direction of the Defense Guidance (DG), the proposed Army program is published each May as the POM. The POM formally transmits to the Office of the Secretary of Defense (OSD) the proposed Army intended activities and undertakings and identifies the manpower and total obligational authority needed over the next 5-year period.

Program development guidance is provided to AMC by the Army guidance (AG), the Five-Year Defense Plan (FYDP), and the program and budget guidance (PBG). The AG, the Army counterpart to the DG, governs programing by both the Army staff and commands. The PBG transmits instructions regarding available dollar and manpower resources and is the single authoritative source of command resource guidance for the Operation and Maintenance, Army (OMA) appropriation and the Army Family Housing (AFH) program and manpower. The FYDP provides resource guidance for RDT&E and procurement. AMC, in turn, provides specific appropriation guidance to its operating elements for preparation of major programing vehicles such as the Mission Area Materiel Plan (MAMP), the Program Analysis and Resource Review (PARR), and the Military Construction, Army/Army Family Housing (MCA)/(AFH) program. The MCA cycle differs in that it is actually making critical construction decisions a year ahead of the other appropriations. This is because Congress requires projects to have 35 percent of design completed by the budget year. The AMC guidance provides objectives/priorities for resource decision-making for use in all appropriations. Extensive coordination with higher, lower, and lateral elements is necessary in the Programing Phase to tie together requirements formulation and justification before competing for funding during the Budgeting Phase.

**C.4**

About a month after the Army POM is submitted, the JCS issues the Joint Program Assessment Memorandum (JPAM). This document analyzes cross-service programs and gives the views of the JCS on the adequacy of support levels in terms of current, required, and programed capability. OSD uses the JPAM in evaluating program issues. Early in the review, the Defense Resources Board (DRB) identifies major program issues. Major issues usually have broad policy, force, program, or resource implications. At the end of the review process, the SECDEF makes a decision on unresolved major issues. In early August, he transmits to each service a Program Decision Memorandum (PDM) approving the POM with specific changes. This provides the basis for formulating Army budget estimates. Comments on the PDMs may be prepared to provide clarifying information or justification for dissenting views. Following OSD review of these comments, meetings are held by the SECDEF to discuss and resolve issues.

**BUDGETING PHASE:**

The Budgeting Phase expresses the program need for dollars and manpower as requests for Congressional appropriations. It proceeds in two consecutive stages. The first, budget formulation, comprises the development of Army budget estimates, their review, and eventual approval as part of the President's budget. The second, budget justification, relates to the process of Congressional review and approval.



Two standing publications govern Army budget formulation: the DOD Budget Guidance Manual (DOD 7110-1-M) and the Army Budget Directive. Three other recurring documents provide instructions applicable to the cycle at hand. One already mentioned is the PBG. The other two are the Command Operating Budget (COB) Instructions and the Budget Estimate Guidance (BEG). The COB Instructions are issued in March as Volume III of the AG. The BEG is published by OSD about one month into the summer program review. Updated one or more times during budget formulation, the BEG covers a wide range of cycle-specific instructions applying to budget submission.

Budget formulation guidance is provided to AMC by the above documents, as well as specific appropriation (e.g., RDT&E, procurement, OMA, etc.) guidance. AMC, in turn, furnishes counterpart instructions to its operating elements. Results of this budget formulation process comprise the AMC COB (for OMA and parts of RDTE) submitted to DA in July. AMC's list of MCA projects is also updated and forwarded to DA where it is centrally managed. The MAMP process develops AMC's RDTE and procurement budget input. They are submitted to DA in July. The MAMP, MCA update, RDTE issues, and COB from AMC, along with COBs and MCA updates from other Army commands, make up for the most part the start point for the DA budget.

Consolidated estimates forwarded to JSD in mid-September are called the Budget Estimate Submission (BES). When OSD identifies a particular program or budget for management attention, a Program Budget Decision (PBD) is issued. Several dozen PBDs may be issued by OSD, changing Army appropriation estimates and particulars of certain programs. Budget decisions based on faulty arithmetic or on facts superseded by new information qualify for formal reclama. Those decisions failing to qualify for reclama action or failing to win acceptance become potential appeal issues. These appeals are submitted to OSD for consideration by the DRB. In mid-December, after all appeals are resolved, the SECDEF submits the recommended defense budget to the President. Upon approval, the Army budget is incorporated into the President's budget and transmitted to Congress.

Budget justification relates to the process of Congressional review and enactment of authorization and appropriation legislation. The President submits his budget within 15 days after Congress convenes in January. Hearings are held to study the Nation's military posture and policy and to review defense management. Defense authorization requests go to the House and Senate Armed Services Committees, known as HASC and SASC.

Defense (as well as other) appropriation requests go to the House and Senate Appropriations Committees known as HAC and SAC. The SA and CSA present the Army posture statement by appearing before all four committees. In subsequent presentations, the Director of the Army budget briefs each committee on the budget. He is followed by program and appropriation directors, who testify regarding individual programs and estimates. Before approving funding authority, Congress enacts specific authorizing legislation, each House responding to recommendations of its Armed Services Committee. Once authorized, programs receive funds through appropriations legislation, each House responding to its Appropriations Committee. When signed by the President, the Defense Authorization Act, the Defense Appropriation Act, and Military Construction Appropriation and Authorization Acts become law. The Army now has the legal authority to incur obligations and make payments. In the event the appropriations law is not enacted, authority to incur obligations and make payments is provided by a Continuing Resolution Authority (CRA). The duration and scope of the CRA is determined by Congress.

**C.6****EXECUTION PHASE:**

The Execution Phase focuses on carrying out the approved program and budget. It entails administrative control of funds and manpower, apportionment requests, allocations, allotments, commitments, obligations, disbursements, reprogramming actions, reporting of results and status, and assessment of the effectiveness of results for feedback into future budgets, programs and plans. In general, AMC executes the resources it has planned, programed, and budgeted for, except MCA which is executed by the Corps of Engineers.

On Army request, after the President signs an appropriation act, the Treasury issues appropriation warrants to the U.S. Army Finance and Accounting Center. There the appropriations are established on the Army's books. Although appropriations make funds available for disbursing, they themselves do not authorize incurring obligations. Funds must first be apportioned by the Office of Management and Budget (OMB). Appropriation directors submit apportionment requests through the SECDEF at the time of budget review. OMB approves the requests through the SECDEF, authorizing the obligation of funds in specified amounts and for specified periods, activities, functions, or projects. For example, specific MCA projects are authorized. Guided by appropriation and funds directors, the U.S. Army Finance and Accounting Center allocates apportioned funds to operating agencies. Operating agencies, in turn, make funds available to

commands and agencies by an allotment. Commands and agencies obligate funds as orders are placed and contracts awarded. Appropriate organizations make disbursements as materiel is delivered and services performed, accounting for funds and submitting data on these obligations and disbursements. The U.S. Army Finance and Accounting Center consolidates the data and prepares monthly accounting reports.

One of the current means of reviewing AMC's performance during the Execution Phase is the quarterly Review and Analysis (R&A). The R&A focuses on, but is not limited to, Execution Phase activities. Information relating to specific AMC resource strategies used to develop the program and budget are incorporated into R&A to allow evaluation of actual performance against specific objectives established during earlier phases. AMC may also be required to provide input for higher level execution reviews such as the Program Performance and Budget Execution Review Systems (PPBERS). The PPBERS is a quarterly DA review for evaluating and reporting on how well expenditures of personnel and funds are being applied to accomplish Army goals. Execution performance is also tracked during years of execution by an extensive obligation tracking system throughout AMC. This system includes development of a detailed obligation plan, tracking actual performance against the plan, and reporting variances complete with reasons, impacts and solutions.

C.7

## REFERENCES:

AR 1-1

DA PAM 5-9

AMC-R 11-4

Theory and Practice, 10th Edition, U.S. Army War College,  
Reference Text, Army Command and Management, Chapters 11 and  
15

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C.8

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**Appendix D**

**THREAT IN THE MATERIEL ACQUISITION PROCESS**

Although many factors influence system design, perhaps the greatest contributor to the ultimate nature of a weapon system should be the estimated enemy threat the system will have to face. This frequently establishes the requirement for the system and strongly influences its complexity, doctrine of utilization, mobility, quantity produced, and resultant cost.

Threat can be developed only by an integration of intelligence pertinent to a potential adversary's strength, capabilities, and intentions. Successful application of the threat to a system's development requires, however, that it be not only well defined, but also defensible against reasonable attack from people and organizations who would argue that it is too severe, not severe enough, not accurately representative of enemy capabilities, or not based totally on firm intelligence information. For systems that require some years to develop, the problem of threat definition and development is formidable. Even more difficult is the task for projecting threat estimates to future timeframes of 20 years or more.

Arranging for the production, approval, and delivery of threat products is an integral part of the intelligence operations of AMC and TRADOC. This section describes those arrangements with emphasis on what the materiel developer and combat developer must do to ensure that the system supports them with adequate and timely threat information. Stress is given to the need for anticipatory thinking. The threat production and approval process takes time and must be initiated as early as possible. Consideration of the best available threat data in the early phases of Requirements/Technology Base Activities will help greatly in developing realistic requirements for Army system performance characteristics.

This appendix provides guidance for the materiel acquisition managers in conformity with AR 381-11, Threat Support to the U.S. Army Force, Combat and Materiel Development. Reference should also be made to TRADOC Regulation 381-1, Threat Management, and TRADOC Pamphlet 381-3 (Draft), Threat Support Handbook.

#### THREAT RESPONSIBILITIES OF ACQUISITION MANAGERS:

The close attention paid to the total threat picture by all decision and review bodies requires that acquisition managers plan for production and consideration of threat from the Requirements/Technology Base Activities Phase throughout the system acquisition process. The table on the next page gives an overview of threat documentation requirements at the various stages of system development.

The left-hand column of the table shows the RDTE program categories from research to engineering development; the next column shows the developmental phases from Requirements/Technology Base Activities to Production-Deployment; the third column shows the milestone decision reviews; the fourth column shows basic program documents; the fifth heading lists the principal threat documents of concern to acquisition managers; and the last column gives pertinent comments relative to threat considerations.

#### THREAT SUPPORT PLANNING (TSP):

Since threat development involves AMC, Army Intelligence Agency (AIA), TRADOC, FORSCOM, HQDA, and DIA, the acquisition manager must work closely with the intelligence officer to ensure that the threat received is responsive to the need. The acquisition manager or the representative should participate in the preparation of a timely TSP. The TSP closely and precisely identifies what threat products are needed, when they are needed, and who is responsible for all actions leading to intelligence product delivery. The TSP provides the acquisition manager with a time schedule for delivery of threat, a description of anticipated content, and a statement of contributions to the threat process.

**D.2**

#### THREAT SUPPORT PERSONNEL:

Within AMC, acquisition activities are supported by local intelligence staff officers called Foreign Intelligence Officers (FIOs) and/or Deputy Chiefs of Staff for Intelligence (DCSI). The FIO/DCSI should be the automatic, standard, "first stop" for all intelligence and threat related questions from AMC personnel. Within TRADOC, the combat development community is supported by local intelligence officers referred to as Threat Managers (TMs), who perform similar functions to the FIOs/DCSIs.

#### THREAT COORDINATING GROUP (TCG):

Direct, focused management of threat support to a system throughout its life cycle is performed by a TCG. The TCG consists of intelligence managers and support officers from HQDA, AMC, and TRADOC; intelligence analysts from production agencies; and representatives of the combat and materiel developers, and systems evaluators such as AMSAA and the test community. The TCG serves as the integrating mechanism to ensure that needs are surfaced, clearly understood, officially tasked, and satisfactorily answered. The TCG exists as a corporate body as long as the system needs support; however, membership will change as necessary.

# THREAT IN THE MATERIEL ACQUISITION PROCESS

D

## THREAT REQUIREMENTS DURING SYSTEM DEVELOPMENT

Program Category	Development Phase	Milestone Decision Review	Program Document	Threat Document	Comments
Research 6.1	Requirements/ Technology Base Activities	--	Battlefield Development Plan (BDP); DA Long- Range RDA Plan (LRRDA); The Army Plan (TAP)	Mission Area Analysis (MAA); Soviet Battle- field Development Plan (SBDP) (1)	Scientific and Technical Intelligence (S&TI) con- tribute to basic research
Exploratory Development 6.2	Requirements/ Technology Base Activities	JMSNS/O&O Plan Approval	Battlefield Development Plan (BDP); DA Long- Range RDA Plan (LRRDA); The Army Plan (TAP) Critical Intelligence Parameters (CIPs)	Soviet Battlefield Develop- ment Plan (SBDP) (1) System Threat Assess- ment Report (STAR) (2)	Intelligence and threat used to assist in defining requirements and isolating deficiencies re- quires early consideration - obtain threat in advance so as not to delay JMSNS
Advanced Development 6.3	Proof of Principle (DoD Concept Exploration/ Demonstration & Validation	Milestone I/II (DoD Milestones I&II)	Battlefield Development Plan (BDP); DA Long- Range RDA Plan (LRRDA); The Army Plan (TAP) CIPs Justification for Major System New Start (JMSNS) O&O Plan	Soviet Battlefield Develop- ment Plan (SBDP) (1) JMSNS--DIA-Validated Projected Threat Updated System Threat Assessment Report (STAR) (2)	
Engineering Development 6.4	Development- Production Prove Out	Milestone III	Required Operational Capability (ROC) CIPs	ROC-Updated STAR	Threat annexes give total projected threat over life cycle

(1) - Soviet Battlefield Development Plan (SBDP). Provides Army Commanders & Planners with long-range Soviet threat against which to evaluate postulated developments in future means and methods of warfare. It is a forecast of what Soviet ground forces on the battlefield of the year 2000 will look like and how they will fight.

(2) - System Threat Assessment Report (STAR). The STAR establishes the parameters of the threat in which the U.S. system is expected to operate. The STAR appendix provides the acquisition manager with detailed threat data required to support a materiel development project. Requires updating before each milestone decision.

D.3



## SYSTEM THREAT ASSESSMENT REPORT:

The System Threat Assessment Report is a threat assessment tailored to and focused on a particular U.S. system. It contains an integrated assessment of projected enemy capabilities (doctrine, tactics, hardware, organization, and forces) to limit, neutralize, or destroy a specific U.S. system. The System Threat Assessment Report will serve as the basic threat document supporting system development. It is a dynamic document that will be continually updated and refined as the program develops. The System Threat Assessment Report is written to support all decision milestones. It should be prepared and approved prior to entry to Proof of Principle Phase as soon after a JMSNS or O&O Plan is drafted as possible.

## CRITICAL INTELLIGENCE PARAMETERS (CIPs):

CIPs are those threat characteristics (such as numbers, types, mix, or characteristics of actual or projected threat systems) identified by service PMs that would critically impact on the effectiveness, survivability, security, or cost of a U.S. system. They should be prepared in close coordination with the DCSI supporting the PMO.

D.4

## NOTES

The PM must report status of the System Threat Assessment Report, TCG, and CIPs during the Program Manager Materiel System (PMSA).

The System Threat Assessment Report, TSP and CIPs are key supporting documents which will be reviewed by the MARB. They are part of the IPR package.

**Appendix E**

**OTHER COST CONTROL MECHANISMS**

## TOTAL RISK ASSESSING COST ESTIMATE (TRACE)

Ref: Letter of Instruction (LOI) for Implementation of RDTE Cost Realism for Current and Future Development Programs, 6 March 1975, HQDA (DAMA-PPM-P).

Description: TRACE is a management technique based on scientific methods, set procedures, and effective controls. It is based on the premise that all funding demands arising during a system's development cannot be identified in advance. However, the total of these funding demands can be predicted and some portion should be included in the budget requests based on the probability of these demands occurring. TRACE is a management tool to predict these additional funding demands. Funding demands may be necessary to compensate for the reasonable expectancy of occurrence of uncertainties associated with a system's development. This prediction is made visible through a quantitative risk assessment. Specific emphasis is placed on the allocation of funds to offset increased system cost needs resulting from occurrence of probable events.

Application: The TRACE concept and procedures are used in the development and justification of weapon and materiel system programs financed by the RDTE appropriation. TRACE is currently available for all major weapon systems and for those in-process review programs designated by HQ AMC. It is designed to produce more realistic cost estimates which reflect a probabilistic assessment of the technical and schedule risks associated with system development. HQDA (ODCSRDA) may direct the application of TRACE procedures to other systems. Managers of other systems may choose to employ the concept. Further information on risk assessment is in "Risk Assessment Techniques: A Handbook for Program Management Personnel," Defense Systems Management College (DSMC), Jul 83.

E.1

## TOTAL RISK ASSESSING COST ESTIMATE FOR PRODUCTION (TRACE-P)

Ref: Letter of Instruction (LOI) for Implementation of the Total Risk Assessing Cost Estimate for Production (TRACE-P), 6 October 1982, HQ AMC (DRCCP-ER).

Description: TRACE-P is similar to TRACE except that it is used in the development of procurement program/budget requirements. TRACE-P projects the expected cost over a specified period of time for the known technological risks in the production of a weapon system. The TRACE-P expected risk cost is defined as the amount of additional funds required at the 0.5 probability level (i.e., 50/50 chance) to accommodate expected technical program risks during the initial 3 years of significant quantity production. The TRACE-P procedure provides consistency in procurement planning, programing, and budgeting under conditions of risk and uncertainty.

Application: TRACE-P applies to the procurement funds for weapon system programs during the transition from research and development through the first 3 years of significant quantity production. Early budget years involving procurement funding for long lead time items are not included.

## DESIGN-TO-COST (DTC)

Ref: DODD 4245.3; AR 70-64, Design to Cost Program; AMC Supplement to AR 70-64; AMC Design to Cost Guide (Draft).

1. Description. DOD's approach to acquiring weapon systems has undergone significant changes during the past 20 years. In our effort to provide the best equipment, emphasis had only been placed on performance and schedule. This emphasis has often resulted in the development of sophisticated weapon systems without proper regard for the total costs involved. The impact of historical weapon system cost growth and budgetary pressures on DOD have focused management's attention on acquisition and support costs. Weapons can no longer be developed with every desired feature; they must be limited to the minimum essential capabilities, even then not all desired systems will be approved. In our current economic and military situation, only those systems that can demonstrate a justifiable need that is both achievable and affordable will be acquired. DTC is a management tool that has been adopted to help ensure the attainment of weapon systems based upon these criteria.

2. Application of DTC.

a. The objectives of DTC, as stated in DOD Directive (DODD) 4245.3, dated 6 Apr 83 are to--

(1) Establish cost as a parameter equal in importance to performance and supportability requirements and schedules.

(2) Establish credible acquisition and operating and support (O&S) DTC parameters that are consistent with program plans and budgets and that achieve the best balance among cost, schedule, performance, reliability, and supportability characteristics.

(3) Require that cost considerations be addressed throughout the design, development, production, and deployment of defense systems, subsystems, and equipment.

(4) Ensure prompt cost feedback to engineers and managers to enable effective and timely cost-reduction actions.

b. It can be seen that the DOD concept of DTC is not simply limited to production costs, but rather includes considerations in the design phase of a weapon system to control the cost of ownership, including acquisition, operation, and support costs. Thus, cost becomes a design parameter during the development, production, and operation of a system in the field.

## DESIGN TO COST

## 3. Developing the DTC program.

a. The implementation of the DTC concept within DOD requires DTC establishment at two specific levels:

(1) Level one of DTC is a cost goal almost contractual in nature. For major systems, this goal is established between the program/project manager (PM) and the Secretary of Defense. This DTC parameter is defined as "flyaway" cost. It consists of contractor and in-house nonrecurring and recurring investment costs, system test and evaluation, and system project management elements of the WBS exclusive of modifications identified with a major weapon system, equipment, or item of the work breakdown structure (WBS) as specified by the PM. For those systems which are anticipated to have low production quantities, the "flyaway" cost may not be an appropriate goal. In these instances, a better cost goal may be the system's acquisition cost. This cost is the sum of the system's research and development (R&D) and procurement funded costs (which includes initial spares, test equipment, support equipment, and others).

(a) Figure 1 illustrates this basic definition of DTC. Dividing the total flyaway cost by the number of systems to be produced, yields the average unit flyaway cost or average unit DTC. The illustration shown is for a surface vehicle system WBS. For other systems such as aircraft, ships, etc., different items of major system/equipment indicated in Military Standard (MIL-STD) 881-A would be substituted.

(b) Identify all items of major systems/equipment of the WBS in accordance with MIL-STD-881-A. Include as separate identities, those items which are planned or expected to be Government furnished by either contract or in-house manufacturing. This approach encompasses all hardware (or items) which are directly associated with the weapon or equipment system and comprises the "flyaway" definition. It should be noted that peculiar and common support equipment, operational/site activation, training (including training devices), data (and documentation), industrial facilities, initial spares and initial repair parts (recurring spares) are all excluded from the "flyaway" cost construction.

# Contract DTUPC vs Flyaway Definition

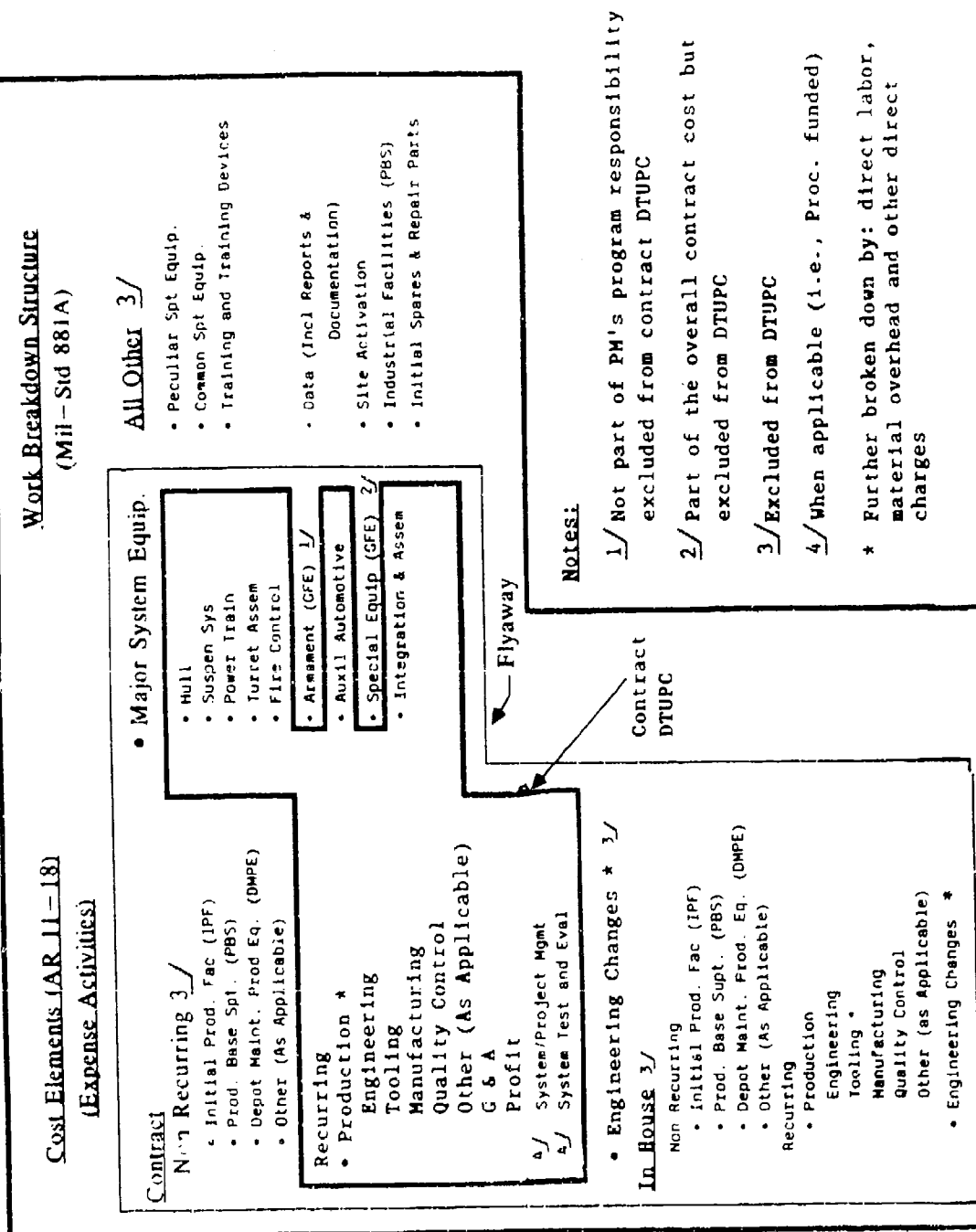


Figure 1

## DESIGN TO COST

(c) Identify all recurring and nonrecurring cost elements associated with both contract and in-house activities required to produce the items specified above. These cost elements can be regarded as the breakdown of investment "expense activities" associated with the procurement of each major system equipment item of the WBS and are to be developed on the basis of the cost elements identified by AR 11-18.

(d) The items of MIL-STD-881-A and the cost elements of AR 11-18 together form a matrix, the cells of which represent the costs for all of the individual "expense activities" for every item of major system equipment (contractor-furnished equipment (CFE) and GFE) of the WBS. Figure 1 presents a typical example of cost elements and WBS identification.

(e) Only that portion of the costs which are to be supported by the Procurement Appropriation of the weapon system, line in the Five-Year Defense Plan (FYDP) (P1), are applicable to the "flyaway" definition. Modifications and first destination transportation are excluded when the costs appear as separate budget lines in the FYDP.

## E.6

(2) Level two is a formal contractual agreement between the Army and industry. This is the Design to Unit Production Cost (DTUPC) and can be viewed as the specific cost goals for contractor recurring costs associated with the production of an end item. The DTUPC normally does not include any in-house investment costs, contractor nonrecurring costs, or engineering change allowances. Additionally, while the major portion of Government-furnished equipment (GFE) costs may not be included in the DTUPC, those costs associated with the integration of GFE by the contractor may be included.

(a) Level two, or the DTUPC, is developed based on judgments concerning the components and costs for which the contractor should be held accountable. Construction of the DTUPC is based on a process of building up those contractor controllable costs associated with the specified elements of the WBS. The construction process should start on the basis of the "flyaway" definition and adhere to the identification of both MIL-STD 881-A (Summary WBS) and AR 11-18 (The Cost Analysis Program) elements.



## DESIGN TO COST

(b) With the "flyaway" DTC constructed as discussed in the paragraphs above, the contract DTUPC can then be developed. In this case, attention is focused on costs directly associated with, and controlled by, the prime contractor. However, a formal DTUPC may also be established through the prime contractor to the sub-contractors or relegated directly to certain key subcontractors. Figure 1 includes an example of a contract DTUPC and its relationship to a "flyaway" DTC construction. It includes only the recurring "production" hardware-related costs displayed on the left for the hardware items on the right.

## 4. Design to Operations and Support Cost (DTOSC) Considerations.

a. As stated earlier, in addition to DTUPC, DODD 4245.3 requires that a proper balance be achieved between production or acquisition costs and O&S costs.

b. The DTC goals for O&S should concentrate on those O&S parameters which have historically been cost drivers, such as initial spares, manpower requirements, and reliability factors. These O&S goals should be expressed in dollars or other measurable terms such as crew and maintenance manpower requirements or logistics reliability and maintainability data such as mean-time-between-failure. As such, the use of reliability improvement warranties is encouraged as one technique to help encourage the contractor to meet or exceed DTC target goals for O&S.

c. In order to determine the degree to which the system has achieved the DTC goals for O&S, tracking should continue until the level of achievement can be determined in circumstances that approximate a mature operating environment.

d. In certain instances, it may be appropriate to make the awarding of the DTUPC incentive fee contingent on the attainment of certain levels of reliability and supportability.

e. The emphasis of DTC is to control the overall cost of acquisition and ownership within the limits of performance and schedule constraints. As the system matures in the development phase, tradeoffs between the acquisition and ownership costs will most likely occur. In certain instances, this may require an increase in the original DTUPC goal in order to achieve a greater cost savings during the system's operational life.

## DESIGN TO COST

## 5. Implementing DTC.

a. DODD 4245.3 requires that DTC goals be established during the Proof of Principle Phase, but no later than the beginning of the Development Proveout Phase. Additionally, DOD requires the application of DTC criteria for all programs where R&D funds are expected to be \$200 million or greater and/or procurement funds are expected to be \$1 billion or greater, i.e., DOD major program criteria. In the case of the Army, these criteria have been extended to include systems having an expected procurement outlay of \$40 million or greater. However, there are provisions for the PM to be granted waivers to DTC requirements.

b. During the Proof of Principle Phase, primary emphasis is placed on identifying relative cost, schedule, and performance trade offs between or among competing concepts. DTUPC considerations will not normally be firm at this point but will be in the form of guidance from the Services to the contractor(s). As the Proof of Principle Phase evolves, the DTC effort becomes more oriented towards providing information required to identify and justify firm DTC goals. This is normally the first phase where the DTUPC is contractually specified.

c. During the Development Proveout Phase, several things must occur in order to ensure a successful DTC effort.

(1) The contractor(s), in cooperation with the PM office, must seek to control the system's unit production cost and to the established targets consistent with O&S cost and performance considerations while still meeting the program schedule.

(2) The tracking procedures specified in the development contract must be executed to include periodic contractor site inspections by a Government team. Any major departures from DTC targets should be surfaced to determine if and to what degree the program must be re-evaluated.

d. Current policy authorizes two payments of the DTUPC incentive fee, depending upon the extent to which the contractor has met the DTUPC goal. The initial payment occurs at the time of the negotiation of the first production contract. The portion of the allowable incentive fee paid is dependent upon how well the negotiated production contract unit price compares with the original DTUPC goal agreed to in the full-scale development contract and that of the production contract signed upon entry into the Development Proveout Phase. The second, and larger, incentive fee payment is reserved until the first production

## DESIGN TO COST

contract is partially completed. It is then based upon the relationship between the negotiated contract production cost and actual production costs demonstrated on the first major production contract.

e. A similar type of tracking system should also be developed for DTOSC considerations. The primary difference will be that evaluation by the Government will be the results of testing or simulation and ultimately field experience. Final payment of the incentive fee is contingent upon demonstrated attainment of the level of reliability and supportability agreed to in the engineering development contract.

## 6. Summary.

a. The overall objective of the DTC program is to develop an optimum balance between cost, schedule, supportability, and performance. The intent is to minimize the total life-cycle cost of acquiring, operating, and supporting a weapon system while maintaining certain levels of performance and schedule. As the system matures during development, various DTC goals should also mature in terms of trading off cost, performance, and schedule. Additional consideration is also placed on examining tradeoffs between acquisition costs and ownership costs. Eventually, these DTC goals will become firm contractual targets for the PM and the contractor as the system moves through development and production and is finally fielded.

b. In order to ensure success, the DTC program requires continued emphasis by the PM and the cooperation of the contractor(s). Any DTC goals (either production or O&S) should be precisely defined, achievable, and be established at a ceiling value. These goals should also be stable yet flexible, trackable over time, and measurable. Finally, where sole-source contractors are involved, some type of incentive or award fee should be used. This award fee should be budgeted for as a separate line item in the PM's program element.

E

E.10

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**Appendix F**

**COST ASSESSMENT**

## PURPOSE

The purpose of this appendix is to provide guidance to the proponent organizations for the preparation of the cost sections of various requirements documents.

## GENERAL

All cost inputs into requirements documents, such as ROCs, are to be reviewed and validated by the Cost Estimate Control Data Center (CECDC) of the major subordinate command (MSC) assigned the materiel developer (MATDEV) responsibilities prior to release outside the AMC community. The validation function includes an assessment of the completeness and reasonableness of the estimate. The requirements documents must be reviewed by HQ TRADOC (ATCD-AR) for sufficiency, propriety, and acceptance of cost information.

## JUSTIFICATION FOR MAJOR SYSTEM NEW START (JMSNS)

The purpose of the JMSNS is to obtain approval for DOD major program initiation. It may be prepared simultaneously with the O&O Plan when preliminary funding research in support of the O&O Plan indicates the program will exceed \$200 million RDTE or \$1 billion procurement funds. Paragraph E of the JMSNS entitled "Funding Implications" will provide gross estimates expressed in current (inflated) dollars in each of the four categories shown below. These estimates and those in the O&O Plan should match.

**F**

## COST ASSESSMENT

### FUNDING IMPLICATIONS

**DISCUSSION:** Discuss affordability, including level of funding the Army is willing to commit to satisfy the need. Discuss the setting of affordability goals, priority of the mission need, and similar issues. Present appropriate information to justify estimates including information on similar systems, technology trends, etc.

#### Funding Requirements

- a. Total RDTE cost.
- b. Total procurement cost.
- c. Unit cost.
- d. Life-cycle cost.

**ADDITIONAL ISSUES:** (Present additional issues of cost significance with appropriate discussion.)

**F.2**

## OPERATIONAL AND ORGANIZATIONAL (O&amp;O) PLAN

The O&O Plan is prepared to support initiation of all materiel acquisition programs. Funding information for the O&O Plan should provide gross estimates of funding requirements needed to acquire and operate the system. The JMSNS format shown below should be used.

## REQUIRED OPERATIONAL CAPABILITY (ROC)

The ROC is submitted to obtain approval for system entry into the Development Proveout Phase, which is supported by 6.4 (Engineering Development) funds. Annex A of the ROC is the Life-Cycle Cost (LCC) assessment section, which contains a summary of estimated LCC, acquisition costs, recommended appropriation funding profiles, and design-to-cost (DTC) summary.

The ROC LCC assessment annex contains the summary information from the Baseline Cost Estimate (BCE), which is a comprehensive and detailed analysis of all costs attributed to a major weapon/support system. Nonmajor system estimates are supported by rationale documented in a BCE tailored to the size of the program, and reflect higher headquarters interest or guidance. The format for the ROC LCC assessment section is shown on pages F.5 - F.7.

F.3

a. Paragraph 1 - Summary of estimated life-cycle costs (page F.5). All costs are expressed in both constant and current dollars. (See AMC Primer on Treatment of Inflation Guidance on page F.8). Development, production, military construction (MILCON), fielding, and sustainment costs (to include software costs) are identified and represent the cost to complete the program. Sunk costs are shown in NOTE 2 and are excluded from the cost summary. Development, production, MILCON, fielding, and sustainment costs are shown as a range of costs from low to most likely to high.

b. Paragraph 2 - Acquisition Cost Summary (page D.7). Procurement and unit flyaway costs are based on the definitions contained in the Guide to Weapon System Cost Terms and Definitions (page F.6). In many Army programs, the term "rollaway" cost is used rather than "flyaway" cost. The quantity entry reflects the most probable total program buy, which inherently reflects the program operational deployment philosophy. The quantity should be based on an authorized acquisition objective (AAO), Basis of Issue Plan (BOIP) or related force planning documents. The source document and its data are identified in —————>



NOTE 3. If an authorized force planning document is not available, a formal quantity estimate must be provided to the MATDEV and this letter or memorandum recorded in NOTE 3. This estimate should reflect a realistic buy quantity. For security classification purposes, it may be necessary to withhold the quantity. In such cases, the source used to derive the quantity must be presented.

c. Paragraph 3 - Recommended Appropriation Funding Profiles (page F.6). The recommended annual appropriation funding program reflects the most likely cost to complete estimates presented in paragraph 1. The "approved program" lines of paragraph 3 show the funds which have been programed or set-aside in anticipation of approval for system acquisition. An approved program is defined as those funds for which the project/product or item manager has current and/or planned expenditure authority.

d. Paragraph 4 - Design-to-Cost (DTC) Summary (page D.8). The DTC summary includes the DTC goals, thresholds, and current estimates for acquisition costs, operation and support cost parameters, and any other appropriate costs for the particular program. The acquisition DTC goals should be expressed in terms of unit production cost (see page F.7). DTC parameters for operation and support costs should be in terms of design-controllable factors such as specific fuel consumption or field reliability. DTC goals should be reported and discussed at the appropriate equipment/subsystem level to provide the decision-maker with the relevant facts upon which to base a decision. The DTC goals for both Design to Unit Production Cost (DTUPC) and Design to Operation and Support Cost (DTOSC) parameters should reflect the same quantity and cost information and assumptions used in paragraphs 1 and 2. Appropriate explanations of the DTC information should be provided.

ESTABLISHED FORMAT  
for the  
LIFE CYCLE COST (LCC) ASSESSMENT SECTION  
of the  
ROC/TDR

(title)

1. Summary of estimated life-cycle costs.

	CONSTANT DOLLARS (FY- \$M-Millions)			CURRENT DOLLARS (Then Year \$M-Millions)		
	Most			Most		
	Low	Likely	High	Low	Likely	High
DEVELOPMENT	...	.....	....	...	.....	....
PRODUCTION	...	.....	....	...	.....	....
MILCON	...	.....	....	...	.....	....
FIELDING	...	.....	....	...	.....	....
SUSTAINMENT	...	.....	....	...	.....	....
AMMUNITION	...	.....	....	...	.....	....

TOTAL

NOTE 1: Quantity of Engineering Development (ED) prototype(s) to be fabricated

NOTE 2: Sunk costs (excluded from para 1): Show all sunk costs which have already been obligated for the item or system and are excluded from the paragraph 1 cost estimates. Sunk costs are only shown through the last completed FY.

DEVELOPMENT  
(actual) \$. . . . . (FY-...Constant) \$. . . .

PRODUCTION  
(actual) \$. . . . . (FY-...Constant) \$. . . .

MILCON  
(actual) \$. . . . . (FY-...Constant) \$. . . .

FIELDING  
(actual) \$. . . . . (FY-...Constant) \$. . . .

SUSTAINMENT  
(actual) \$. . . . . (FY-...Constant) \$. . . .

F.5

F

## COST ASSESSMENT

ESTABLISHED FORMAT  
for the  
LIFE CYCLE COST (LCC) ASSESSMENT SECTION  
of the  
ROC/TDR  
(continued)

2. Acquisition Cost Summary. Quantity/unit costs, estimated unit/system flyaway and unit/system procurement costs expressed in constant FY .... dollars.

ITEM	QUANTITY	UNIT FLYAWAY	UNIT PROCUREMENT
		\$. . . . .	\$. . . . .

NOTE 3: Source document for QTY is . . . . .

3. Recommended Appropriation Funding Profiles. Recommended funding profiles for each applicable appropriation expressed in current (inflated) dollars (\$M-Millions).

RDTE:	EY*	BY**	FY-	FY-	FY-	FY-	FY-	OYC***TOTAL
	\$	\$	\$	\$	\$	\$	\$	\$

Approved program  
Estimate

Variance

Procurement:	EY*	BY*	FY-	FY-	FY-	FY-	FY-	OYC***TOTAL
	\$	\$	\$	\$	\$	\$	\$	

Quantity  
Approved program  
Estimate

Variance

Other appropriations:

.....  
.....

\* - Execution Year  
\*\* - Budget Year  
\*\*\* - Out year costs

F.6

ESTABLISHED FORMAT  
for the  
LIFE CYCLE COST (LCC) ASSESSMENT SECTION  
of the  
ROC/TDR  
(continued)

NOTE 4: Inflation has been incorporated in accordance with  
(insert AMC directive) issued on (insert date).

General remarks: All required appropriations are shown  
(e.g., RTE, Procurement, MCA, OMA,  
MPA).

QTY refers to quantity of major items  
procured in the referenced FY.

Variance should be the difference  
between the approved program and the  
current dollar cost estimate.

4. Design to Cost Summary. Expressed in constant FY...dollars.

Unit Production Cost\* (DTUPC)

Item	DTC Goal	DTC Threshold	Current Estimate
------	----------	---------------	------------------

Unit Operation and Support Cost Goals (DTOSC)

Item	DTC Goal	DTC Threshold	Current Estimate
------	----------	---------------	------------------

\* Include appropriate information upon which goals, thresholds, and current estimates are based.

TRAINING DEVICE REQUIREMENT (TDR)

TDRs are used for training devices in the same manner as  
ROCs. The ROC LCC Assessment Section format should be used.

## AMC PRIMER ON TREATMENT OF INFLATION GUIDANCE

## 1. INTRODUCTION

a. This primer provides an overview of the application of OMB/OSD inflation indices within AMC and the Army.

b. The official inflation indices provided for use within the DOD PPBS process reflect the latest OMB economic assumptions. These indices are used in the preparation of the budget and supporting Congressional justification materials, Selected Acquisition Reports (SARs), and the Program Objective Memorandum (POM) submission.

## 2. EXPLANATION OF TERMS

a. Escalation rate: The change in price level from 1 year to the next.

b. Spend-out rate: The expenditure pattern over a specific number of years for a given appropriation; this ranges from 3 to 7 years.

c. Compound indices: Inflation factors determined by combining the annual escalation rates over time using the basic compound interest formula.

d. Composite indices: Inflation factors determined by multiplying the compound indices by the spend-out rate; composite indices are the ones normally used for treatment within the DOD PPBS process.

e. Current dollars: Actual, unadjusted cost of resources in the year incurred; out-year projections include expected inflation.

f. Constant dollars: Cost estimates which do not contain any adjustments for inflationary changes that have occurred or are forecast to occur outside the base fiscal year. Constant dollars are always identified with a specific time period, which is called a base year. Constant prices represent the total cost of an item or service if purchased in the base year and the bill was completely paid in that year.

## 3. METHODOLOGY FOR CONSTRUCTION OF INDICES

The composite index for aircraft procurement for the base year FY 86 is constructed below as an example. This process is repeated to determine composite indices for the respective appropriations, normally for the current (or execution) year, budget year, and 15 additional years.

	<u>Escalation rate</u>	<u>Compound indices</u>	<u>Spend-out rate</u>
FY 86	9.6%	1.0000	x .1500 (1st Yr) = .1500
FY 87	8.5%	1.0410	x .4000 (2nd Yr) = .4164
FY 88	7.3%	1.0816	x .2200 (3rd Yr) = .2379
FY 89	7.5%	1.1184	x .1400 (4th Yr) = .1566
FY 90	6.5%	1.1508	x .0900 (5th Yr) = .1036

FY 86 Composite Index = 1.0645

The cost of the program in constant dollars is converted to current dollars by adjusting expenditures in the out years for inflation. If a program costs \$1,000 in constant dollars, it will cost \$1,064.50 in current dollars based on the above example.

F.9

## 4. APPLICATION OF INFLATION INDICES

a. Research, Development, Test, and Evaluation, Army (RDTEA): For budget estimates, all portions of RDTEA projects are inflated within AMC except in-house salaries which are adjusted at the HQDA level. LCC estimates inflate in-house RDTEA project salaries using the Operation and Maintenance, Army (OMA) rates.

b. Procurement appropriations: Indices for aircraft, missiles, weapons and tracked combat vehicles, ammunition, and Other Procurement, Army (OPA), are applied within AMC to major items and to corresponding secondary items, modifications, production base support, and product improvements.

c. Military Personnel, Army (MPA): For budget submissions, MPA is adjusted in the aggregate at HQDA. Within AMC, the MPA indices are used in the preparation of life-cycle estimates.

d. OMA: These indices are used for preparation of life cycle cost estimates only, since the OMA portion of the HQ AMC budget submission is adjusted for inflation in the aggregate at the HQDA level. The indices are applied to that portion of the OMA appropriation not covered by special guidance on -- (1) pay

raises; (2) rate/price stabilization increases for the Army Industrial Fund (AIF) Army Stock Fund (ASF); and (3) petroleum, oil, and lubricant prices.

e. MILCON Army: These indices are applied by AMC in conjunction with geographical adjustment factors and guidance in AR 415-17, Empirical Cost Estimates for Military Construction and Cost Adjustment Factors.

5. SPECIAL CONSIDERATION - ALL APPROPRIATIONS

All estimates derived from contractors and suppliers are considered to be current (inflated) dollars unless specifically stated as being in specific constant year dollars. Appropriate adjustments must be made to remove prior year inflation before applying new indices or moving the estimate to another year.

KEY TERMS	TOTAL COST*
<ul style="list-style-type: none"> <li>RECURRING PRODUCTION<sup>1</sup> <ul style="list-style-type: none"> <li>ENGINEERING</li> <li>TOOLING</li> <li>MANUFACTURING</li> <li>QUALITY CONTROL</li> <li>OTHER (AS APPLICABLE)</li> <li>G&amp;A AND PROFIT</li> </ul> </li> </ul>	CONTRACT PORTION <sup>2</sup> ONLY
TOTAL DESIGN TO PRODUCTION COST	\$\$\$\$
PLUS: <ul style="list-style-type: none"> <li>ENGINEERING CHANGES</li> <li>GOVERNMENT FURNISHED EQUIPMENT (GFE)</li> </ul>	\$\$\$\$
TOTAL HARDWARE COST	\$\$\$\$
PLUS: <ul style="list-style-type: none"> <li>NON-RECURRING PRODUCTION <ul style="list-style-type: none"> <li>INITIAL PRODUCTION FACILITIES<sup>2</sup></li> <li>SYSTEM TEST &amp; EVALUATION<sup>3</sup></li> <li>SYSTEM PROJECT MANAGEMENT<sup>3</sup></li> </ul> </li> </ul>	\$\$\$\$
TOTAL FLYAWAY COST	\$\$\$\$
PLUS: <ul style="list-style-type: none"> <li>PECULIAR SUPPORT EQUIPMENT</li> <li>DATA</li> <li>INDUSTRIAL FACILITIES/PBS<sup>4</sup> (IF NOT A SEPARATE BUDGET LINE ITEM)</li> <li>OPERATIONAL SITE ACTIVATION</li> <li>TRAINING</li> </ul>	\$\$\$\$
TOTAL WEAPON SYSTEM COST	\$\$\$\$
PLUS: <ul style="list-style-type: none"> <li>INITIAL SPARES &amp; REPAIR PARTS</li> <li>MODIFICATION WORK ORDERS (MWO'S)</li> </ul>	\$\$\$\$
TOTAL PROCUREMENT COST	\$\$\$\$
PLUS: <ul style="list-style-type: none"> <li>TOTAL RDTE</li> <li>TOTAL MCA</li> </ul>	\$\$\$\$
TOTAL PROGRAM ACQUISITION COST <sup>5</sup>	\$\$\$\$
PLUS: <ul style="list-style-type: none"> <li>INDUSTRIAL FACILITIES/PBS (IF A SEPARATE BUDGET LINE ITEM)</li> <li>COMMON SUPPORT EQUIPMENT</li> <li>TOTAL GMA FOR PROGRAM ACQUISITION PHASE</li> <li>OPERATING AND SUPPORT (O&amp;S) COSTS</li> </ul>	\$\$\$\$
TOTAL LIFE CYCLE COST	\$\$\$\$

PROCUREMENT FUNDED COSTS

- References:
- DOD Manual 7110-1-M, Budget Guidance Manual, Change No. 1
  - DODI 5000.33, Uniform Budget/Cost Terms and Definitions
  - DODI 7000.3, Selected Acquisition Reports
  - DODD 4245.3, Design to Cost
  - AR 70-64, Design to Cost
  - AR 11-18, Cost Analysis Program
  - DARCOM-P 700-6, Joint Design to Cost Guide, Life Cycle Cost as a Design Parameter
  - AMC Guide, Design to Unit Production Cost (AD No. A006214)

\* Total = Contract + In-House

UNIT COST	KEY TERMS
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$$\div QTY = \text{\$ \$ \$} \quad \text{DESIGN TO UNIT PRODUCTION COST (DTUPC)}^6$$

$$\div QTY = \text{\$ \$ \$} \quad \text{UNIT HARDWARE COST}$$

$$\div QTY = \text{\$ \$ \$} \quad \text{UNIT FLYAWAY COST}^7 \text{ (IDTC)}$$

$$\div QTY = \text{\$ \$ \$} \quad \text{UNIT PROCUREMENT COST}$$

$$\div QTY = \text{\$ \$ \$} \quad \text{UNIT PROGRAM ACQUISITION COST}^5$$

- Notes:
- Applies to basic unit and/or major components.
  - The portion of PBS oriented to production engineering, tooling, and other non-recurring start up costs.
  - When applicable.
  - If not a separate budget line item; and costs are not included in non-recurring production above.
  - Key SAR cost term. Also, Nunn-McCurdy value.
  - The Army's contract oriented design-to-cost value established for hardware development of basic unit and/or components.
  - Normally, the Army's design-to-cost value established with OSD.



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F. 12

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**Appendix G**

**GLOSSARY OF TERMS**

## GLOSSARY OF TERMS

G

ABCA Countries. America, Britain, Canada, and Australia and associated through Australia, New Zealand.

Acquisition. The process consisting of planning, designing, production and distributing a weapon system/equipment.

Acquisition Management Milestone System (AMMS). The Department of the Army standard integrated life cycle management milestone reporting system and central data repository for recording system status in the acquisition cycle through fielding.

Acquisition Plan (AP). Derived from the acquisition strategy and summarizes acquisition background and need, objectives, conditions, strategy, and related functional planning (with emphasis on contractual aspects). It provides detailed planning for contracts and milestone charting.

Acquisition Planning. The formulation of methods to bring together disciplines necessary to determine, develop, or otherwise obtain and sustain systems/equipment of requisite quality in support of requirements on time and at a fair price.

Acquisition Program. A defined effort funded by RDTE and/or procurement appropriations with the express objective of providing a new or improved capability in response to a stated mission need or deficiency.

Acquisition Strategy. The conceptual framework for conducting materiel acquisition, encompassing the broad concepts and objectives which direct and control the overall development, production, and deployment of a materiel system. It evolves in parallel with the system's maturation. Acquisition strategy must be stable enough to provide continuity, but dynamic enough to accommodate change. It is documented and approved as an annex to the DCP at Milestone I/II.

Acquisition Team. The Acquisition Team encompasses all functional organizations involved in the acquisition process (materiel developer, combat developer, independent evaluators, testers, logistician, doctrinaire, trainer, user, transportability and intelligence/security organizations, with industry interface where sanctioned by legal review. The Acquisition Team is established early in the acquisition program, during development of the O&O Plan, with functional representatives to assist the materiel developer in planning the acquisition strategy. The Acquisition Team continues to function throughout the acquisition process and culminates after materiel fielding.

G. 1

Advanced Development (AD). Projects which have moved into the development of hardware for development or operational testing. Utilizes 6.3 RDTE funds.

Affordability. Function of cost, priority, and availability of fiscal and manpower resources.

Annual Appropriation. An appropriation which is available for incurring obligations only during one fiscal year.

Apportionment. A determination as to the amount of obligations which may be incurred during a specific period.

Appropriation. An authorization to incur obligation for specified purposes and to make payments out of the treasury.

Approval Authority. The level of guidance and decision authority designated for approval of IPR actions (appointment of IPR chairman, approval of the AMC position prior to an IPR and approval of the IPR results).

**G.2**

Army Acquisition Executive (AAE). The principal adviser and staff assistant to the Secretary of the Army for acquisition of Army systems; responsible for overall management of research, development, and acquisition programs; the Assistant Secretary of the Army (Research, Development, and Acquisition) responsible for overall management of RDA programs.

Army Acquisition Objective (AAO). Quantity of an item authorized for peace time acquisition to equip the US Army approved force and specified allies in peacetime and sustain these forces in wartime from D-Day through the period, and at the level of support prescribed by the latest OSD materiel support planning guidance.

Army Capabilities Plan (ACP). A HQDA document reflecting capabilities attainable within the existing programs and budget limitations.

Army Cost Analysis Paper (ACAP)-HQDA (COA). Originated document presenting a comparative analysis between costs present in the materiel development's current BCE, and a corresponding IPCE developed by the COA.

Army Force Guidance (AFG). A HQDA document providing objective force guidance to major Army commands.

Army Planning and Programing Guidance Memorandum (APPGM). A CSA document providing program guidance to the Army Staff for POM development.

Army Program Memorandum (APM). A document initiated by direction of HQDA and reviewed by the ASARC when HQDA has final program decision authority.

Army Systems Acquisition Review Council (ASARC). Top level DA corporate body for systems acquisition that provides advice and assistance to the Secretary of the Army. Reviews DOD major programs and DAPs.

Army Strategic Appraisal (ASA). A HQDA document presenting the critical strategic issues for mid-range period.

Army's Five-Year Defense Plan (AFYDP). The official programming document consisting of the Army's portion of the FYDP.

Authorization. Legislation enacted by the Congress which approves a program but does not usually provide budget authority.

Automation Security. Measures employed to protect Army automation and information handled by such automation from hostile and benign threats, and to safeguard against unauthorized exploitation through espionage, sabotage, theft, fraud, misappropriation, or misuse.

Availability. Measure of the degree to which an item is in operable and committable state at the start of the mission, when the mission is called for at an unknown (random) point in time.

Bands of Performance. A costing ceiling and performance floor that describes a performance characteristic of a system. The cost ceiling is the most cost and operationally effective capability that the materiel developer can achieve without going over the highest acceptable cost. The performance floor is the least operational capability that the user will accept.

Base Level Commercial Equipment. Army investment equipment for which management and acquisition by local purchase is delegated by HQDA to the General Operating Agency. For use by the agency and its subordinate table of distribution and allowances and joint tables of allowances activities. Does not include commercial equipment which requires Army central management or procurement; does include all designated nonstandard commercial equipment end items costing \$5,000 and over.

**Baseline Cost Estimate (BCE).** A document prepared by the materiel developer; detailed estimate of acquisition and ownership normally required for high level decision; provides the basis for subsequent tracking and auditing.

**Basis of Issue.** Authority which prescribes the number of items that may be issued to an individual, a unit, or an activity. It is stated in authorization documents.

**Basis of Issue Plan.** A planning document that lists certain TOE (level), TDA, CTA, JTA, and AOP in which a new item will be placed, the number of items to be included in each organizational element, and other equipment and personnel changes needed because of the new item. BOIP is not an authorization document.

**Battlefield Automated System.** System designed for use by the Army in the field that contains a computer and will not function without it.

**Battlefield Development Plan (BDP).** The summary of the various MAAs. It integrates deficiencies identified by specific requirements and presents them to HQDA.

**Battlefield Integration.** The act or process of harmonizing separate materiel systems and personnel resources into a cohesive battlefield system, configured to maximize total system capabilities.

**Best Technical Approach (BTA).** An element of the Concept Formulation Package which identifies the best technical approach(es) for a materiel solution to a user deficiency.

**Block Design.** Development on system improvements in blocks while the basic system is still being developed and continues into production. This replaces or supplements the heel-to-toe development procedures previously inherent in Army policy. It greatly improves responsiveness to battlefield threat used in conjunction with P3I.

**Brassboard.** An experimental device used to determine feasibility and to develop technical and operational data, sufficiently hardened for use outside the laboratory for use in demonstrating the technical and operational principles of immediate interest.

**Breadboard.** An experimental device used to determine feasibility and to develop technical data, normally only configured for laboratory use to demonstrate the technical principles of immediate interest.

**Break-Even Analysis.** Analysis of proposed procurement and facilitization to compare potential cost of establishing a second source (facilities, educational buy, TDP, and rights cost) with potential savings due to competitive pressure from the second source.

**Budget.** A planned program for a fiscal period in terms of estimated costs, obligations, expenditures, source of funds for financing, reimbursements anticipated, and other resources to be applied.

**Budgeting.** The process of translating approved resource requirements into time-phased financial requirements.

**Capability Goal.** An objective which justifies combat and materiel developments. When achieved, it will reduce the Army's vulnerability or will provide a major operational advantage in a certain area. Capability goals are detailed enough to provide a basis for: (a) early development planning; (b) evaluating technological proposals provided by materiel developers; (c) evaluating materiel proposals by Army users.

**Catalog of Approved Requirements Documents.** A DA catalog of approved requirements which provides current information on approved requirements documents to combat developers and the research and development communities.

**Combat Developer (CBTDEV).** Command or agency that formulates doctrine, concepts, organization, materiel requirements, and objectives. Represents the user community in the materiel acquisition process. This includes systems for retail level logistics support, primarily for Army forces in a theater of operations.

**Combat Development Item.** A new item of equipment developed or procured in response to a DA approved materiel requirements document. It is intended mainly to be used in a theater of operations or to control civil disturbances.

**Commercial Products or Items.** Products or items in regular production sold in substantial quantities to the general public and industry at established market or catalog prices.

**Commercial Training Device Requirement (CTDR).** Initiates acquisition or modification of training devices that are commercially available without expenditure of RDTE funds.

**Commonality.** Materiel or systems that are interchangeable. Each can be used or operated and maintained by personnel trained on the other system without more specialized training. Also, repair parts and components can be interchanged and applied to consumable items without adjustment.

**Communications Security (COMSEC).** Protection resulting from measures taken to do either of the following: deny unauthorized persons information relating to national security that might be derived from telecommunications, or insure the authenticity of such telecommunications.

**Computer Resource Management Plan (CRMP).** The primary program management document that describes the development, acquisition, test, and support plans for computer resources integral to, or used in, direct support of Army materiel systems.

**Concept Evaluation Program.** Innovative tests conducted with command controlled funds, personnel and equipment to provide information on the operational feasibility of a concept or system.

**G.6**

**Concept Formulation Package (CFP).** The documentary evidence that the concept formulation effort has satisfied the objectives. Normally consists of the TOD, TOA, BTA, and COEA.

**Concepts Analysis Agency (CAA).** Provides an analytical capability for studies, required by the CSA and heads of Army Staff agencies, including the integration of strategy, Army force design, operational plans and concepts, and tradeoff and cost-effectiveness studies.

**Conference Action.** A function of members of both the House and the Senate in joint session, to reconcile their differences so that a single bill can be recommended which will gain the approval of both Houses.

**Configuration Management Plan.** Defines Government and bidder or contractor interaction and schedules procedures for conducting the configuration management program.

**Continuing Appropriation.** Appropriated funds which remain available for obligation and expenditure until the projects are completed and/or the funds are expended.

**Continuing Resolution.** An authorization by the Congress establishing prior year rates of expenditure only on a short-term basis, when passage of an appropriation is delayed past the beginning of the fiscal year.



**Continuity of Operations.** The measures or procedures, manual or automated, established and applied throughout the life cycle of a BAS. Data are made available with timely transfer during the systems operational periods in all environments.

**Contract Definition.** The accomplishment of preliminary engineering and contract and management planning in order to arrive at realistic design characteristics, cost estimates, schedule estimates, definition of high risk areas, as well as definition of system interfaces and management responsibilities.

**Cost Analysis Brief (CAB)-HQDA (CAO).** Originated document presenting a comparative analysis between the MATDEV's current BCE and the IPCE.

**Cost Analysis Improvement Group (CAIG).** An advisory body established to advise the JRMB on all matters concerning the estimation, review, and presentation of cost analysis of future weapon systems.

**Cost and Operational Effectiveness Analysis (COEA).** A documented investigation of comparative effectiveness of alternative means of eliminating or reducing a force or mission deficiency against the defined threat and the cost of developing, producing, distributing, and sustaining each alternative system in a military environment for a time preceding the combat application. Also, a documented investigation of a valid requirement that HQ TRADOC and HQDA have approved.

**Cost and Training Effectiveness Analysis (CTEA).** A methodology which involves documented investigation of the comparative effectiveness and costs of alternative training systems for attaining defined performance objectives, taking into consideration usage pattern and training scenarios. A CTEA can examine training concepts, training equipment, training strategies, programs of instruction, training implications of new materiel, organizations, tactics, employment techniques, or families of systems. CTEA is used in conjunction with the COEA.

**Cost Baseline.** A validated and formally approved listing of aggregate program costs that reflects all program directive document (PDD) delineated efforts. The cost baseline is a part of the Program Management Control System (PMCS) documentation.

**Cost Estimate Control Data Center (CECDC).** The official point of registration and control for cost submissions, which is located within the cost analysis activity at each AMC major subordinate command, established to review and validate cost estimates and data before release to higher headquarters or outside AMC.

Cost Performance Report. A monthly contractor report on major acquisition contracts providing status and projections of contract costs, along with explanations of significant variances and problems.

Cost/Schedule Control Systems Criteria (C/SCSC). The set of standards (criteria) used to determine the adequacy of a contractor's cost/schedule control system and the manner in which it is used.

DA Logistics Support Officer (DALSO). HQDA representative of the Logistics Community who provides the continuous coordination necessary to insure the smooth integration of new hardware and materiel systems into the Army force structure.

DA System Coordinator (DASC). Individual or team designated by the DCSRDA to function as the HQDA POC for all aspects of a system's development and acquisition, and to coordinate the status of all events in the acquisition process for DOD major systems, DAPs, IPR programs, or one or more similar or related IPR programs selected for DASC management.

G.8

Data Exchange Agreement (DEA). Provides for cooperative research and development with exchange of technical and scientific information of mutual interest to the participating nations.

Data Processing Installation (DPI). Facility, room, or building housing ADP equipment or storage media. Does not include areas associated with auxiliary power or output processing unless they are co-located with the DPI.

Decision Authority. Organizational level approval authority, e.g., CG AMC (MACOM level), CG TACOM (MSC level).

Decision Coordinating Paper. A decision paper that gives the reason for starting, continuing, reorienting, or stopping a development program at each critical decision point during the acquisition process.

Defense Acquisition Executive (DAE). The principal adviser and staff assistant to the SECDEF and the focal point in OSD for system acquisitions.

Defense Guidance (DG). Provides Secretary of Defense guidance to the DOD Components for the preparation of their Program Objective Memorandum.

Defense Mission. The mission of DOD as specified by the legislative authority.

Defense Resources Board (DRB). Established to supervise the OSD review of the DOD Components' POM and budget submissions and manage the program and budget review process.

Defense System Acquisition Review Council (DSARC). Changed to new term. See Joint Requirements and Management Board (JRMB).

Department of the Army Modification Work Order (DAMWO). The authorization and instruction document controlling installation of a modification to fielded equipment.

Design-To-Cost (DTC). A management concept wherein rigorous cost goals are set during development. The control of system costs (acquisition, operations and support) to these goals is achieved by practical tradeoffs between operational capability, performance, costs, and schedules. Addressed on a continual basis as part of a system's development and production process.

Design-To-Cost Goal. A specific cost established as a goal for a specific configuration, established performance characteristics, and a specific number of systems at a defined production rate.

Design-To-Unit Production Cost (DTUPC). Contractual provision which is the anticipated unit production price to be paid by the Government for recurring production costs, based on a stated production quantity, rate, and timeframe.

Designated Acquisition Program (DAP). A program designated by the AAE for ASARC milestone review. Selection is based on resource requirements, complexity, and Congressional interest.

Detailed Test Plan (DTP). A set of explicit instructions for affecting every phase of the test, particularly test control, data collection, and analysis.

Development Test (DT). The engineering test to provide data on safety, the achievability of critical system technical characteristics, refinement and ruggedization of hardware configurations, and determination of technical risks. This testing is performed on components, subsystems, materiel improvement, nond developmental items (NDI), hardware-software integration and related software. DT includes the testing of compatibility and interoperability with existing or planned equipment and systems and the system effects caused by natural and induced environmental conditions during the development phases of the materiel acquisition process.

Doctrine. The fundamental principles by which the military force or elements guide their actions to support national objectives. It is authoritative but requires judgement in application.

DOD Components. The Military Departments, the Defense agencies, the organization of the JCS, OSD, and activities administratively supported by OSD.

DOD Major System. A system selected by the SECDEF for review by the JRMB. Selection for JRMB review is based on resource requirements, complexity, interservice requirements, and Congressional interest.

Early Comparability Analysis (ECA). Identifies those manpower personnel, and training "high driver" tasks that can be limited or eliminated in the design of new or improved systems. ECA also helps develop preliminary manpower, personnel and training constraints and/or guidelines.

Electromagnetic Spectrum Allocation Request. An allocation request to use portions of the electromagnetic spectrum of a new system.

Embedded Computer Resources. Computer resources integral to or required in direct support of Army materiel systems. Included are resources required from a design, procurement, and operations viewpoint when separate selection, acquisition, or management is not feasible.

Embedded Training. Training which results from features designed and built into a specific end item equipment to provide training in the use of that end item equipment: (a) will not interfere with the operational requirements capabilities of the system, (b) trains individual tasks through force level collective tasks as required.

Emission Security (EMSEC). Protection that results from all measures designed to deny unauthorized persons information of value that might be derived from intercept and analysis of compromising emanations.

Energy Dependent Materiel. Any system, vehicle, weapon, or equipment that needs energy to perform its function.

Engineering Change Proposal (ECP). Proposal to change design or engineering features of materiel under development or production. Includes proposed engineering change and documentation by which the change is described and suggested.

Engineering Development. RDTE funding category that includes development programs being engineered for Service use but not yet approved for procurement or operation. Utilizes 6.4 RDTE funds.

Environmental Assessment/Environmental Impact Statement (EA/EIS). EA contains an estimate of whether or not a proposed system will adversely affect the environment or be environmentally controversial in which case an EIS is prepared.

Exploratory Development. RDTE funding category that includes all effort directed toward the solution of specific military problems, short of major development projects. Utilizes 6.2 RDTE funds.

Explosive Ordnance Disposal. An AMC program to provide the capability, to Army EOD field personnel, to neutralize the hazards existing in unexploded or damaged explosive ordnance which present a threat to operations, installations, personnel, or materiel.

Extended Planning Annex (EPA). A document providing program guidance for an additional 10 years beyond the program planning guidance.

Failure Mode Effects and Criticality Analysis (FMECA). Narrative description of probable effects of failure for each failure mode. Included is criticality of the failure; for example, completely inoperable in some modes, or operable at a degraded level of performance.

First Unit Equipped (FUE) Date. The scheduled date a system or end item and its agreed upon support elements are issued to the designated initial operational capability unit and training specified in the new equipment training plan has been accomplished.

Fiscal Guidance. The annual guidance issued by the SECDEF which provides the fiscal constraints that must be observed by the DOD Components in the formulation of force structures and FYDP and by the OSD in reviewing proposed programs.

Five-Year Defense Program (FYDP). The publication that records, summarizes, and displays the decisions that have been approved by the SECDEF as constituting the DOD program.

Follow-On Operational Test and Evaluation (FOT&E). FOT&E is that OT&E conducted as necessary after the full production decision during production and deployment of the system. FOT&E is conducted to assess system training and logistics, and to verify correction of deficiencies, if required, and to ensure that initial production items meet operational effectiveness and suitability thresholds. FOT&E will be scheduled and programmed as a normal part of an acquisition program. The operational IE will make maximum use of both production and preproduction qualification tests and other data sources (e.g., sample data collection, field user surveys) to assess FOT&E issues minimizing the requirement for follow-on operational testing.

Force. Units with their inherent doctrine, organization, personnel, materiel, and structure to carry out a specific mission, area of operation, scenario, or strategy. A force can be conceptual, planned, programed, or actual. It can include a few units in the Army (for example, the Army force structure).

Force Analysis. The determination, within projected resource constraints, of the most effective mix of units (including weapons) to carry out Army missions and functions. It involves a total Army force structure of Army components and major force categories (such as division forces). It addresses the full spectrum of time considered by the Defense Planning, Programing, and Budgeting System. Therefore, both programed and conceptual forces are considered.

Force Development. The integration of allocated and projected Army resources into a time-phased program to develop a force that is properly organized, equipped, trained, and supported to carry out the Army missions and functions worldwide. This includes force planning, programing, analysis, structuring, combat, and training developments

Force Development Test and Experimentation (FDTE). FDTE is conducted early on to support the force development and materiel development processes by examining the effectiveness of existing or proposed concepts of training, logistics, doctrine, organization, and materiel. FDTE is conducted early and can be scheduled as needed during any phase of the materiel acquisition process. They may be related to, combined with, or used to supplement OT. During the requirements formulation effort, FDTE may be used to determine essential and desirable capabilities or characteristics of proposed systems. Prior to MS II FDTE will be used to assist in refining concepts of employment, logistics, training, organization and personnel, in lieu of OT when operational issues are adequately addressed. FDTE also includes field experiments designed to gather data through instrumentation

to address a training development problem or to support simulations, models, wargames, and other analytical studies. Requirements for FDTE may also be generated by the results of combat developments, training developments, or training effectiveness analysis testing and studies (AR 71-3).

Force Integration Staff Officer (FISO). An individual assigned to ODCSOPS to serve as the HQDA user representative for a specific system. The FISO provides continuous coordination necessary for integration of a new system into the Army force structure.

Force Management. The control of resources employed by the Army for force development. It includes force planning and programing.

Force Planning. The development of defense policies and military strategy to attain national security objectives and to determine the force objectives, capabilities, and resources to carry out the Army roles and missions. Force planning is generally related to the development of the Army Mobilization and Operations Planning System.

Force Programing. The translation of OSD planning and programing guidance into a comprehensive and detailed allocation of forces, manpower, and fiscal resources for a 5-year period. Program developments are published each year in the POM. It presents to OSD the Army's proposal for a balanced allocation of its resources within certain constraints.

Force Structuring. The composition of a force, by number and types of TOE units and organizations, within given guidance. The unit and organizations prescribed by competent authority are used.

Formal IPR. A review convened when a formal life cycle or other major decision is required for nonmajor systems/items.

Functional Purchase Description (FPD). Describes the minimum essential physical, functional, and other characteristics necessary to meet the stated requirement; what, if any, production testing must be performed; quality assurance, delivery schedule, logistic and maintenance support provisions, training support, technical manual and training materiel needs, configuration change control, and special conditions as appropriate.

Harmonization. The interservice, interagency and selected allied review of validated requirements documents for the purpose of preventing needless duplication, enhancing interoperability, and fostering cooperative research and development efforts.

Health Hazard Assessment (HHA). The application of biomedical knowledge and principles to identify, evaluate, and control the risks to the health and effectiveness of personnel who test, use, or service Army systems.

Human Factors Engineering Analysis (HFEA). An analysis, performed in support of acquisition milestone reviews, to identify any problems in MANPRINT (human factors engineering, manpower, personnel, training, system safety, and health hazards) which may be sufficiently critical to preclude the system's proceeding into the next phase of the acquisition process. A secondary objective is to identify MANPRINT concerns which, while not critical in terms of program decisions, are resolvable, and must be addressed during the subsequent phase of the acquisition cycle.

**G.14**

In-Process Review (IPR) Program. Army acquisition programs other than DOD major or Designated Acquisition Programs.

Independent Cost Analysis (ICA). An analysis of program cost estimates conducted by an impartial body disassociated from the management of the program.

Independent Cost Estimates (ICE). Any cost estimate developed in organizational channels separate and independent from program proponent channels and having the express purpose of serving as an analytical tool to validate or cross-check cost estimates developed in proponent channels.

Independent Evaluation (IE). The process used by the independent evaluators to independently determine if the system satisfies the approved requirements. It will render an assessment of data from all sources and an engineering or operational analysis to evaluate the adequacy and capability of the system.

Independent Evaluation Report (IER). Provides a written report on the independent evaluation (IE) (see above).

Independent Parametric Cost Estimate (IPCE). A highly aggregated, output related (physical and/or performance parameter), system life-cycle cost estimate accomplished outside of the functional control of the program proponents.



Independent Research and Development (IR&D). A technological link between DOD and industry. It provides DOD with the mechanism to become aware of the latest independent scientific and technological efforts of the industry in support of DOD needs.

Individual and Collective Training Plan (ICTP). The plan that identifies the training concept, strategy, and requirements for the system from initial qualification through sustainment and follow-on training for all MOS and at all levels.

Industrial Preparedness Planning (IPP). Actions to ensure industrial resources are available and capable of satisfying surge and mobilization requirements.

Informal IPR. An informal review which may be convened by the materiel developer at his discretion or when requested by a member, to review projects status and determine an appropriate course of action when a formal decision is not required.

Initial Production Facilities (IPF). Type of provision of industrial facilities that provide production facilities necessary to support low-rate initial production of systems, end items, or components.

Integrated Logistic Support Plan (ILSP). Provides a composite of all support considerations necessary to assure the effective and economical support of a system for its life cycle and serves as the source document for summary and consolidated information required in other documents of the program management documentation.

Integrated Logistic Support (ILS). A composite of all support considerations necessary to assure the effective and economical support of a system at all levels of maintenance for its programed life cycle.

Integrated Program Summary (IPS). Summarizes, in greater detail than the DCP, various facets of the implementation plan for a system acquisition at Milestones I/II and III.

Integrated System Support. Considerations of logistics support aspects for a system in the context of the system's role in the force structure. Emphasizes interactive relationships such as standardization, interoperability, and resource implications (such as manpower, petroleum, oils, and lubricants, storage, training site, and ammunition) of fielding the new system.

International Armaments Cooperative Opportunities Plan (IACOP). A document which ensures that opportunities to conduct cooperative research and development projects with NATO partner nations and other Allies are considered during the early decision points in DOD's formal development review process, in connection with any planned project. It also ensures that foreign technology and NATO standardization and interoperability considerations are integral elements in the planning and execution of all programs/projects, provided U.S. security is not jeopardized.

International Materiel Evaluation (IME) Program. A program established to review and evaluate foreign free world materiel in the late stage of development, or deployment, that appears to meet U.S. Army requirements (approved or in draft form). The ultimate objective is the acquisition of foreign materiel that will provide improved capability, decreased acquisition costs and early operational availability and interoperability as advantageous alternatives to the procurement of US developed or improved materiel.

Interoperability. The ability of systems, units, or forces to provide services to, and accept services from, other systems, units, or forces and to use these services to enable them to operate effectively together.

G.16

Issue Papers. OSD documents defining issues raised as a result of the analysis of the annual POM submittal prepared to assist the SECDEF in making his program decisions.

Joint Intelligence Estimate For Planning (JIEP). A description of the situations and developments throughout the world that could affect the US security interest in the short-and mid- range periods.

Joint Long-Range Estimate Intelligence Document (JLREID). Similar to the JIEP but for the long-range period.

Joint Long-Range Strategic Study (JLRSS). A document that provides the conceptual view of the JCS concerning the utilization of US military power in the long-range period and broad strategic guidance for the development of military policies, plans, programs, and R&D objectives.

Joint Program Assessment Memorandum (JPAM). Submitted for consideration in reviewing the Services' Program Objective Memorandum (POM), developing Issue Papers, and drafting Program Decision Memorandum (PDM).

Joint Requirements and Management Board (JRMB). Top-level DOD corporate body for systems acquisition that provides advice and assistance to the Secretary of Defense.

Joint Service Operational Requirement (JSOR). A statement of need for the same end item for use by the Army and at least one other military service. Army proposed JSORs usually are directed by higher authority and are prepared and processed following ROC procedures and format as much as possible.

Joint Strategic Capabilities Plan (JSCP). A document that provides a statement of military strategy to support national policies based on capabilities.

Joint Strategic Planning Document (JSPD). Submitted for use in the development of the draft Consolidated Guidance (CG).

Joint Strategic Planning System (JSPS). A series of seven documents (the JPAM, JIEP, JLEID, JLRSS, JRDOD, JSDP and JSCP) prepared and issued by the JCS to help carry out strategic planning responsibilities.

Joint Working Group (JWG). The JWG is composed of representatives for the combat and materiel developers and appropriate subject matter experts. The primary purpose of the JWG is to provide a forum for direct communication facilitating the coordination of requirements documents. The JWG is initiated and chaired by the combat developer in coordination with the materiel developer. In the event of disagreement among the members, unresolvable by the JWG, the issue is presented for resolution by the chairman through normal command/staff channels.

Justification For Major System New Start (JMSNS). Defines a deficiency or opportunity such that there is a reasonable probability of satisfying a need by the acquisition of a single system.

Lead Service. The DOD service designated by the SECDEF to be responsible for management of a system acquisition involving two or more DOD services in a joint program.

Life Cycle Cost (LCC). Approach to costing that considers all costs incurred during the projected life of the system, subsystem, or component being evaluated. Includes cost to develop, procure, operate, and maintain the system over its useful life.

**Life Cycle Cost Activities.** There are five activities: development, production, military construction, fielding, and sustainment. The first four are limited to the appropriations of RDTE, Procurement, MILCON and OMA. The last (sustainment) contains procurement, MPA and OMA appropriations.

**Life Cycle Cost Categories.** There are three categories: research and development, investment, and operating and support.

**Life Cycle Phases.** ASAP consists of three phases, Proof of Principle, Development Prove Out and Production-Deployment. The DOD traditional life cycle consists of four phases, Concept Exploration, Demonstration-Validation, Full-Scale Development and Production-Deployment.

**Limited Production.** The initial, low rate production of a system in limited quantity to be used in operational test and evaluation for verification of production engineering and design maturity and to establish a production base prior to a decision to proceed with production.

**G.18**

**Line Authority.** DOD officials in the direct chain of authority from the SECDEF to the PM and excluding staffs.

**Line Item Number (LIN).** Six character alphanumeric identification of the generic nomenclature assigned to identify nonexpendable and Type Classified expendable and durable items of equipment during their life cycle authorization and supply management.

**Local Purchase.** Authorized purchase of materials, supplies, and services by an installation for its own use or use of an installation or activity logistically supported by it.

**Logistic Support Analysis Record (LSAR).** File of logistic support information in standardized format, on acquisition programs for specific new or modified systems and equipments. Serves acquisition process using logistic data derived during all phases of the process to support logistic support analysis processes.

**Logistician.** A command/agency other than the materiel developer, combat developer, trainer, or user representative responsible for independent logistic surveillance and evaluation of materiel acquisition programs. The logistician is appointed by ODCSLOG.

**Logistics Annex.** A brief description of the logistics considerations essential to program planning and decisions at Milestones I and III.

**Logistic Support Analysis (LSA).** An analytical technique used by integrated logistic support management to provide a continuous dialogue between designers and logisticians. LSA provides a system to identify, define, analyze, quantify, and process logistics support requirements for materiel acquisition programs.

**Long Range Period.** Usually 11 to 20 years into the future.

**Long Range Research, Development and Acquisition Plan (LRRDAP).** This plan displays RDTE and procurement funds in support of requirements identified by MAAs and summarized in the Battlefield Development Plan. Portrays programs over a 17-year period, displays RDTE programs that support procurement, is fully compatible with the PPBES, reflects a by-year prioritization, and is the starting point for RDA fiscal program building.

**Low Cost Program.** An acquisition program with an estimated RDTE cost of less than \$6 million and a production cost of less than \$12 million in any 1 year or \$50 million total RDTE and procurement over any 5-year period.

**Low Rate Initial Production (LRIP).** Optional materiel acquisition phase used when circumstances preclude full rate production decision. LRIP describes the low rate of output at the beginning of production to reduce the Government's exposure to large retrofit programs and costs while still providing adequate numbers of hard tooled production items for final test prior to full rate production decisions.

**Maintainability.** Ability of an item to be retained in or restored to specified condition when maintenance is performed by personnel having specified skill levels, using prescribed procedures and resources, at each prescribed level of maintenance and repair.

**Major Milestones.** A point in time at which a recommendation is made and approval sought from higher authority regarding initiation/continuation of a program. The normal milestones are the Program Initiation Decision, the Go-No-Decision (Milestone I/II), and the Production Decision (Milestone III).

**Major System Acquisition.** A system acquisition program designated by the SECDEF to be of such importance and priority as to require special management attention.

**Manpower.** The personnel strength as expressed in terms of the number of men and women available to, or required by, the Army.

Manpower and Personnel Integration (MANPRINT). A comprehensive technical effort to support system effectiveness by integrating into the materiel development and acquisition process all relevant information concerning human factors engineering, manpower, personnel, training, system safety, and health hazards.

Manpower and Personnel Planner. The agency responsible for developing the total Army requirements to operate, maintain, and support development items or systems.

MANPRINT Joint Working Group (MJWG). TRADOC proponent Director of Combat Developments establishes MJWG early in requirements formulation phase. The MJWG provides oversight and manages MANPRINT issues during the materiel acquisition process.

Manufacturing Methods and Technology (MMT). Serves to develop and improve, or expand manufacturing technology by improving manufacturing processes, techniques, and equipment to provide for timely, reliable, economic, and high quality production of required materiel.

Market Investigation (MI). Process of gathering information in response to an O&O Plan. It is a central activity in the Proof of Principle Phase, leading toward an initial milestone review decision as to whether or not to select an NDI acquisition strategy.

Market Surveillance. Systematic information and data gathering process to develop and maintain awareness of marketplace activities and products with potential for US Army use.

Materiel Acquisition Review Board (MARB). Senior level (GO/SES) review board convened to review, advise, and ultimately approve key program management documents (PMD) and ASARC preparation efforts prior to each milestone review. HQ, AMC MARB is convened for all DOD major programs and DAPs. MSC MARB is convened for all other programs (i.e., IPR programs) and prior to any HQ AMC, MARB.

Materiel Developer. The command or agency responsible for research, development, and production validation of a system (including the system for its wholesale level logistics support) which responds to HQDA-approved materiel requirements.

Materiel Fielding Plan (MFP). The MFP is a stand-alone document which consolidates all MATDEV and gaining MACOM actions, schedules, and procedures needed to process, deploy, and sustain a system. Detailed planning and actions required for deployment of a system are described in the MFP. The MATDEV, coordinating with Integrated Logistic Support (ILS) Program Participants and gaining MACOM, prepares the MFP.

**Materiel Release.** The authority granted by the designated general officer to issue materiel to the user (e.g., VCSA is designated to approve all conditional releases on major and DAP systems).

**Materiel Requirements Document.** States concisely the minimum essential operational, technical, logistical, and cost information necessary to initiate development of procurement of a materiel system.

**Materiel Requirements List.** A line-by-line list of all materiel (end item/system, associated support items of equipment, etc.) that will be supplied as a total package by the fielding command to the gaining MACOM under the Total Package/Unit Materiel Fielding (TP/UMF) concept.

**Materiel System.** An item, system, or all systems or materiel. This includes all required system support elements.

**Materiel Transfer Plan (MTP).** Central document used for support and fielding planning for designated displaced systems.

**Memorandum Of Understanding (MOU).** A formal agreement on terms and schedules.

**Mid-Range Period.** Normally the 8 years after the budget year.

**Military Occupational Specialty (MOS).** A term used to identify a grouping of duty positions possessing such close occupational or functional relationships that an optimal degree of interchangeability among persons so classified exists at any given skill level.

**Mission Area.** A segment of the defense mission as established by the SECDEF.

**Mission Area Analysis (MAA).** An assessment of the capability of a force to perform within a particular battlefield or functional area. The analysis designed to discover deficiencies in doctrine, organizations, training, and materiel, and to identify means of correcting these deficiencies; stressing first doctrinal solutions, then training solutions, then organizational solutions, and finally, materiel solutions. MAA also provides a basis for applying advanced technology to future Army operations.

**Mission Area Deficiency Statement (MADS).** Identifies technology needed to support military construction, base development, installation operations or installation maintenance and repair, and military engineering activities.

Mission Area Development Plan (MADP). Transitions the MAA corrective actions to specific projects with milestone schedules so that resources can be applied to the elimination of the MAA deficiency. Each mission area proponent (TRADOC school) publishes an MADP annually. MADP contains sections on materiel, doctrinal, organizational, and training corrective actions.

Mission Area Materiel Plan (MAMP). A fully integrated multi-appropriation effort jointly conducted with TRADOC to develop systematically a prioritized long-range RDA plan for the acquisition of materiel systems in response to user requirements.

Mission Element. A segment of a mission area critical to the accomplishment of the mission area objectives and corresponding to a recommendation for a major system capability as determined by a DOD Component.

Mission Support Plan. A statement by the gaining MACOM that identifies how they plan to logistically support a new item/system.

Noncombat Development Item. A new item, developed or procured, in response to a DA approved materiel requirements document. It is not intended to be used in a theater of operations or to control civil disturbances.

Nondevelopmental Item (NDI). NDI is a generic term that covers materiel available from a variety of sources with little or no development effort by the Army. NDIs are normally selected from commercial sources, materiel developed and in use by other US military sources, Government agencies, or other countries.

Operational Needs Statement (ONS). States a user's operational need for a materiel system to correct a deficiency or to improve a capability that affects mission accomplishment. The ONS provides a communication link between the combat/materiel developer community and the user community outside of the combat/materiel developer community to initiate the combat development process.

Operational and Organizational Plan (O&O Plan). The program initiation document in the materiel acquisition process; prepared prior to the RUC or JSOR to support acquisition of all new materiel systems.

Operational Independent Evaluation. A command or agency independent of the materiel developer or the user that conducts operational independent evaluations of Army systems, normally OT&A or TRADOC.



Operational System Development (6.7). A funding category including R&D effort directed towards development. Engineering and test of systems, support programs, vehicles and weapons that have been approved for production and deployment.

Operational Test (OT). The field test, under realistic combat conditions, of the system for use in combat by representative military users. OT provides data to assess operating instructions, training programs, publications, and handbooks. It uses personnel with the same military occupational specialty as those who will operate, maintain, and support the system when deployed.

Operational Test and Evaluation Agency (OTEA). The agency responsible for all OT&E.

Operations Security (OPSEC). Protection of military operations and activities resulting from identification and subsequent elimination or control of indicators susceptible to hostile exploitation.

Outline Test Plan (OTP). A resource document which is prepared for the Test Schedule and Review Committee (TSARC) (AR 15-38). It contains a listing of the necessary resources and administrative information required for support of a test. The OTP also contains the critical test issues and test conditions, prepared by the operational tester for submission to the TSARC. OTPs for TT are prepared when user troops are required.

Personnel. A term used to describe the characteristics of an individual soldier (as opposed to a manpower space). Personnel includes consideration of MOS, specialty code, and grade.

Physical Configuration Audit. Formal examination of the "as-built" configuration of a unit of a configuration item against its technical documentation in order to establish the item's initial production configuration identification.

Pilot Production. The controlled manufacture of limited numbers of an item for service T&E purposes, using manufacturing drawings and specifications which have been developed for quantity production, and with tooling that is representative of that to be used in unlimited production.

Planning, Programing, Budgeting, and Execution System (PPBES). An integrated system for the establishment, maintenance and revision of the FYDP and the MOD budget.

Preplanned Product Improvements (P3I). Planned future evolutionary development of incremental improvements to system capability.

**Preproduction Prototypes.** Those engineering development prototypes manufactured for TT&E and OT&E prior to full production.

**Preproduction Qualification Test (PPQT).** The formal contractual tests that ensure design integrity over the specified operational and environmental range. These tests usually use prototype or preproduction hardware fabricated to the proposed production design specifications and drawings. Such tests include contractual reliability and maintainability demonstration tests required prior to production release.

**Product Assurance Plan.** Implements a product assurance program including reliability, availability, and maintainability (RAM), quality hardware and software and system assessment to ensure user satisfaction, mission and operational effectiveness and performance to specified requirements.

**Product Baseline.** Initial approved or conditionally approved product configuration identification.

**Product Improvement.** Effort to incorporate a configuration change involving engineering and testing effort on end items and depot repairable components, or changes on other than developmental items to increase system or combat effectiveness or extend the useful military life.

**Producibility Engineering and Planning (PEP).** Applies to those RDTE funded planning and system production engineering tasks undertaken by the materiel developer on major or nonmajor end items or components to insure a smooth transition from development into production. PEP, a system engineering approach, assures that an item can be produced in the required quantities and in the specified timeframe, efficiently and economically, and will meet necessary performance objectives within its design and specification constraints. As an essential part of all engineering design, it is intended to identify potential manufacturing problems and suggest design and production changes or schedule tradeoffs which would facilitate the production process.

**Production-Deployment Phase.** Normally, the third phase of the Army Streamlined Acquisition Process. During this phase, operational units are trained, equipment if procured to meet the AAO, distributed, and logistic support is provided.

## GLOSSARY OF TERMS

**Production Qualification Test (PQT).** The tests which ensure the effectiveness of the manufacturing process, equipment, and procedures. These tests are conducted on a number of samples taken at random from the first production lot, and are repeated if the process or design is changed significantly, and when a second or alternate source is brought on line. These tests are also conducted against contractual requirements.

**Production Readiness Plan.** Addresses availability of critical materials, Government investment in production facilities, ways to increase competition in production, industrial preparedness planning, production risks and action necessary to reduce such risks, production readiness review milestones, engineering support to overcome problems and reduce costs, and minimum sustaining rate.

**Production Readiness Review (PRR).** A formal, documented, systematic examination of a program to determine if the system design is ready for production, production engineering problems have been identified and solutions are in progress, quality assurance and acceptance test procedures are adequate, and the Army and producer have accomplished adequate planning for the production phase.

**Program Analysis Resource Review (PARR).** A major Army command submittal to HQDA covering the commands requirements for the first year of the 5-year program.

**Program and Budget Guidance (PBG).** A HQDA document to major Army commands providing resource guidance.

**Program Budget Decision (PBD).** Provides the SECDEF's decisions on the budgets submitted by the DOD Components.

**Program Decision Memorandum (PDM).** A document which provides decisions of the SECDEF on POMS and the JPAM.

**Program Directive (PD).** Provides a clear definition of the DA-approved program which is consistent with the approved acquisition strategy, funded program requirements, and the Army's budget. The PD is a document of the Program Management Control System (PMCS).

**Program Element (PE).** The basic building block of the FYDP, which is a description of the mission to be undertaken and collection of the organizational entities to perform the mission.

**Program Element Descriptive Summary (PEDS).** A backup document for an RDT&E program element as submitted to Congress in the annual budget submittal.

Program Management Control System (PMCS). Consists of management actions in a single integrated process to control selected programs and their costs.

Program Management Document. A document that contains records of program decisions and requirements. It provides analyses of technical options and the life cycle plans for developing, producing, training, and supporting materiel items.

Program Objective Memorandum (POM). A document submitted to the SECDEF by the heads of the LOD Components which recommends the total resource requirements within the parameters of the SECDEF fiscal guidance.

Program/Project/Product Manager (PM). An individual chartered to conduct business on behalf of the Army who reports to the materiel developer or to the commander of a subordinate organization as designated by the materiel developer, and is assigned the responsibility and delegated the full-line authority of the materiel developer for the centralized management of a specified acquisition program.

**G.26**

Program/Project/Product Manager Charter. A document stating the PM's responsibility, authority, and accountability in the management of a major system acquisition program.

Proponent. An organization or staff which has been assigned primary responsibility for materiel or subject matter in its area of interest.

Provisions of Industrial Facilities (PIF) Part of the Production Base Support Program that provides for initial production facilities, modernization, expansions, and support of production facilities.

Qualitative and Quantitative Personnel Requirements Information (QQPRI). A compilation of specified organizational, doctrinal, training, and personnel information developed by the materiel developer and combat developer for new or modified materiel items.

Qualitative Research Requirements for Nuclear Weapons Effects (QRR). Provides the basis and authority for research efforts directed toward satisfying Army requirements for nuclear weapons effects information.

Quality Assurance. Function of management that assures that newly procured materiel conforms to the stated quality, performance, safety, and reliability standards of the TDP and contract performance specifications.

Quick Reaction Capability (QRC). An expedited procedure for solving research, development, procurement, testing, evaluation, installations modification, and logistics problems as they pertain to electronic warfare.

Rationalization, Standardization, and Interoperability (RSI). Action that increases effectiveness of alliance forces through more efficient or effective use of committed Defense resources.

RDTE Activities. Consists of all efforts funded from the RDTE appropriation regardless of program category or program element.

Reclama. A formal restatement and presentation of budget requirements in further justification of that portion of the requirements that the reviewing authorities have reduced or deleted.

Recoupment. Estimated cost savings from prior year programs used to finance current programs.

Reliability, Availability, and Maintainability (RAM). RAM requirements are those imposed on materiel systems to insure that they are operationally ready for use when needed, will successfully perform assigned functions and can be economically operated and maintained within the scope of logistics concepts and policies. RAM programs are applicable to materiel systems, test measurement and diagnostic equipment (TMDE), training devices and facilities developed, produced, maintained, procured or modified for Army use. Reliability is the duration or probability of failure-free performance under stated conditions. Availability is a measure of the degree to which an item is in operable and committable state at the start of the mission. Maintainability is the ability of an item to be retained in or restored to specified condition when maintenance is performed by personnel having specified skill levels, using prescribed procedures and resources, at each prescribed level of maintenance and repair.

Reprogramming. The transfer of funds between programs of an appropriation.

Required Operational Capability (ROC). A document which concisely states the minimum essential operational, technical, logistic, and cost information necessary to initiate full scale development or procurement of a materiel system.

Requirements Review Committee (RRC). A HQ TRADOC committee responsible for the final review of requirements documents for the purpose of recommending disposition (approval/disapproval/return to originator) to the approval authority.

Research. Scientific study and experimentation directed toward increasing knowledge and understanding in those fields directly related to explicitly stated long-term national security needs. Utilizes 6.1 RDTE funds.

Research and Development Planning Summary (DD Form 1634). A document to provide information to the USDRE for R&D program planning review.

Research and Technology Work Unit Summary (DD Form 1498). A document to provide technical and management data for ongoing research and technology.

Safety and Health Hazard Assessment and Analyses. The documented quantitative determination of system safety and health hazards. this includes the evaluation of hazard severity, hazard probability, operational constraints, and the identification of required precautions, protective devices, and training requirements/restrictions.

Safety Release. Documents the safety precautions to be taken by the operational tester to avoid system damage and personal injury based on developmental testing and/or a Safety Assessment report.

Scenario-Oriented Recurring Evaluation Systems. An evaluation technique and framework used to identify performance shortfalls and to address organization, doctrine, tactics, training, and materiel.

Secretary Of Defense Decision Memorandum (SDDM). Documents each SECDEF decision, established program goals and thresholds, reaffirms established needs and program objectives, authorizes exceptions to acquisition policy and provides direction and guidance for the next phase of the acquisition cycle.

Selected Acquisition Report (SAR). A document prepared for the SECDEF by a DOD component which summarizes current estimates of technical, schedule, and cost performance in comparison with the original plans and current program.

Short Range Time Period. Normally covers the current and budget years.

**Soldier-Machine Interface (SMI).** Consideration through system analysis and psychophysiology of equipment design and operational concepts to insure they are compatible with the capabilities and limitations of operators and maintenance personnel. Also referred to as soldier-materiel interface and soldier-machine interaction. SMI is included in MANPRINT.

**Source Selection.** The process wherein the requirements, facts, recommendations and Government policy relevant to an award decision in a competitive procurement of a system/project are examined and the decision made.

**Special IPR.** A formal IPR directed by HQDA or the appropriate approval authority within AMC, to consider issues needing resolution or decision and not necessarily related to a particular development milestone. Special IPRs are normally used for making recommendations pertaining to such things as type classification of nondevelopmental items (NDIs).

**Special Study Group (SSG).** Group chartered by the CBTDEV and normally composed of representatives of HQDA, CBTDEV, operational tester, MATDEV, logistician, trainer, and PM-designee, convened during the Requirements/Technology Base Activities Phase to conduct analysis, insure inclusion of all alternatives within an analysis, monitor experimentation, or undertake other such tasks that may require concentration of special expertise for a short duration. Normally chaired by a CBTDEV representative. MATDEV representative on the SSG develops the AS.

**Special Task Force (STF).** Group chartered by the CSA and normally composed of the chartered task force director, and representatives of the user, MATDEV, trainer, HQDA, CBTDEV, operational tester, logistician, and PM-designee. Convened during Concept Exploration Phase to conduct in-depth investigation of the need for the system described in the initial requirements documents and of alternative system designs, to monitor experimentation and arrive at recommended approach to provide the system described in validated requirement document. MATDEV representative develops the system's AS.

**Specified Command.** A command which has a broad continuing mission and which is established and so designated by the President through the SECDEF with the advice and assistance of the JCS. It is normally composed of forces from one service.

**Standardization.** The process by which various defense forces achieve the closest practicable cooperation and the most efficient use of research, development, and production resources.

Standardization Plan. Assures that standardization will be applied in design during the development, as appropriate, to reduce cost of production and operational support.

Statement of Need Clothing and Individual Equipment (SN-CIE). Prepared specifically to support development, planning, programing, budgeting and fielding of all clothing (personal, optional, organizational), associated heraldics and individual equipment.

Status Report. An annual report from the SECDEF to the President highlighting the POM and issues identified along with status of the resolution of the issues.

Study Advisory Group (SAG). An advisory group convened by a study sponsor and composed of representatives of various HQDA organizations, Army Staff agencies, and major army commands having a clear functional interest in the study topic or use of study results.

Study Advisory Group DATA Subgroup. A group consisting of representatives of TRADOC and AMC to include testing agencies and other commands, when appropriate, who are responsible for coordinating and providing system data input. The objective of the SAG Data Subgroup is to assure adequate development of system data as defined and established in the COEA study plan.

System Acquisition Decision Memorandum (SADM). Provides the Army decision authority's decision including: approval of goals and thresholds for cost, schedule, performance and supportability; approval of exceptions to the normal acquisition process; and other direction as appropriate.

System Concept Paper. Supports the DOD Milestone I decision, documents the results of the Concept Exploration Phase, and provides the acquisition strategy for the program.

System Design Concept. An idea expressed in terms of general performance, capabilities, and characteristics of hardware and software oriented either to operate or to be operated as an integral whole in meeting a mission.

System Manager. Individual chartered by the Secretary of the Army, assigned responsibility and delegated full-line authority for centralized management of a specified acquisition project.



System MANPRINT Management Plan (SMMP). The SMMP is a living document that will be updated as needed throughout the materiel acquisition process. It serves as a planning/management guide and audit trail, to identify the tasks, analyses, tradeoffs, and decisions that must be, or have been, made to address MANPRINT issues during the materiel acquisition process.

System MANPRINT Manager. The manager responsible for implementation of MANPRINT on their specific weapon system. Within a program management office, the ILS manager is also the MANPRINT manager.

System Readiness Objective. Measures relating to the effectiveness of an operational unit to meet peacetime and wartime mission requirements considering the unit set of equipment and the potential logistic support assets and resources available to influence the unit's operational readiness and sustainability. Peacetime and wartime SRO will differ due to usage rate, operational modes, and mission profiles and operational environments. Examples of SRO include: operational availability at peacetime usage rates, operational availability at wartime usage rates, sortie generations per given timeframe (aircraft), and maximum administrative/logistic downtime (intermittent missions). SRO must relate quantitatively to system design parameters (for example, RAM) and to support resource requirements.

G.31

System Safety Program Plan. Implements system safety engineering program that will assess the safety of the system and assure that the system meets the user's safety requirements and regulatory standards.

Technical Data Package (TDP). A generic term applicable to various types of technical data when used for procurement and other specified purposes. A TDP is a composite of drawings, specifications, plans, standards, models, and such other data as may be necessary to describe existing materiel so that they may be procured by the method contemplated, maintained, installed, packaged, transported, used, or developed.

Technical Data Package Management Plan (TDPMP). Identifies the overall concept to be used for acquiring a TDP. The TDPMP details the specific uses that a TDP will be acquired to support, identifies the funding required to acquire the TDP, and spells out the detailed financial plan to acquire the TDP. Delivery milestones are also identified.

Technical Feasibility Testing (TFT). Technical testing conducted prior to MS I or MSI/I<sub>1</sub> in determining safety and establishing system performance specifications and feasibility.

Technical Independent Evaluator. A command or agency independent of the PM or developing major subordinate command that conducts technical independent evaluations of Army systems, normally AMSAA or TECOM.

Technical test (or testing (TT)). TT is a generic term which encompasses Technical Feasibility Tests, Development Tests, Qualification Tests, Joint Development Tests, and Contractor and Foreign Tests. (See AR 70-10.)

Technology Base. The Army's science and technology base consisting of funding categories research (6.1), exploratory development (6.2), and non system advanced development (6.3).

Technology Integration Steering Committee (TISC). TISC is a decision body that considers high pay-off materiel concepts for transition to the Proof of Principle phase. The TISC also provides an early focus of high pay-off battlefield system concepts which exploit breakthrough technology.

G.32

Telecommunications Requirement (TELER). A statement on which planning, programing, and budgeting justification and management evaluation are based for all strategic (nontactical) telecommunications services, facilities, systems, equipment, engineering, and technical assistance.

Test and Evaluation (T&E). The performance of test and the evaluation of test results.

Test and Evaluation Master Plan (TEMP). A document used in the Army review and decision process to assess the adequacy of the planned testing and evaluation. It is prepared for all defense system acquisition programs. The TEMP is a broad plan that relates test objectives to required system characteristics and critical issues and integrates objectives, responsibilities, resources, and schedules for all T&E to be accomplished. Replaces Coordinated Test Plan.

Test Design Plan (TDP). A formal document developed by the test organization which states the circumstances under which a test and/or evaluation will be executed, the data required from the test, and the methodology for analyzing test results.

Test Integration Working Group (TIWG). A formally chartered organization chaired by the materiel developer and having as a minimum membership representatives (with authority to act for their respective commands/activities) from the combat developer, the logistician, the operational tester, the materiel developer

and, when appropriate, the contractor. The primary purpose of the TIWG is to provide a forum for direct communication to facilitate the integration of test requirements and speed up the TEMP coordination process. The objective of the TIWG is to reduce costs by integrating testing to the maximum extent, eliminate redundant testing, and facilitate the coordination of test planning, interchange of test data, and use of test resources to achieve cost-planning, interchange of test data, and use of test resources to achieve cost-effective testing.

Test Report (TR). Contains the data obtained from executing the test and describes the conditions which prevailed during the test execution and data collection.

Test Support Package (TSP). Test support packages are provided by the proponent materiel developer and the combat developer/trainer. The proponent materiel developer provides packages consisting of the maintenance support for the item/system and a new equipment training package. The combat developer/trainer provides the following: statement of doctrine and techniques for employment, statement of organization and basis of issue and training plan, statement of logistic support concepts, mission profiles, statement of suitable threat for test and a description of test setting, including terrain and friendly forces situations.

Test, Measurement, and Diagnostic Equipment (TMDE). Any system or device used to evaluate the operational condition of a system or equipment to identify or isolate any actual or potential malfunction.

Tester. The agency responsible for the technical testing (TT) or user testing (UT) of materiel. TT is planned, conducted, and monitored by the materiel developer. UT is the responsibility of and is managed by OTEA and/or TRADOC.

The Army Plan (TAP). Provides a definitive basis for program action. It lays out what the Army wants to be able to do in support of the Army mission and describes how the Army will build the objective force. The plan supports preparation of command PARR documents the POM.

Threat. A broad term, the ability of a potential enemy to limit or prevent mission accomplishment or to neutralize or reduce the effectiveness of a current or projected organization or item. The threat to a given US system is a statement of that capability. It is prepared in detail about a specific problem or project to provide support for Army planning and development of concepts, doctrine, and materiel.

Total Package/Unit Materiel Fielding (TP/UMF). A materiel distribution control process that provides a consolidated support package of equipment and materiel for the gaining command.

Total Risk Assessing Cost Estimate (TRACE). Expected cost over a specified period of a materiel development program computed on the basis of cost of accomplishing work elements of work breakdown structure, including specific provisions for statistical estimation of probable costs otherwise indeterminate.

Total Risk Assessing Cost Estimate for Production (TRACE-P). Provides the same function for production programs as TRACE (see above) does for RDTE programs.

Trade-Off Analysis. A document prepared by an STF or SSG, or jointly by the combat and materiel developers, to determine which technical approach offered in the TOD is best.

Trade-Off Determination. The document prepared by the materiel developer. It is sent to the combat developer or to an STF or SSG to convey the feasibility of a potential system. Included are technical risks related to each approach, estimated RDTE and procurement costs and schedules.

G.34

TRADOC Materiel Evaluation Committee (TMEC). Established to review all IPR/ASARC milestone decision review positions or test waivers and OT test issues and criteria.

TRADOC System Staff Officer (TRASSO). HQ TRADOC point of contact for assigned materiel systems/projects/programs.

TRADOC Systems Manager. Managers appointed by the CG, TRADOC for selected major and nonmajor materiel acquisition programs. They are appointed shortly after the beginning of a program or at about the same time as the AMC Project Manager. The TSM manages all facets of user input and user actions throughout the development, production, and deployment of an assigned system.

Trainer. The agency that trains personnel to operate and maintain development items or systems. For most equipment, this is TRADOC.

Training Developer. The agency that develops the training strategy and requirements for both institutional and unit training. TRADOC is the Army's principle training developer.

Training Device. Items which simulate or demonstrate the function of equipment or systems such as three dimensional models, mock-ups or exhibits. They are designed, developed, or procured only for training support.

**Training Device Needs Statement.** A document which provides the minimum essential information concerning the role of the proposed training device in an individual or collective training program, and where and how the device will be used.

**Training Device Requirement (TDR).** A document which supports the transition from advanced development or otherwise entering the Development Proveout Phase in the acquisition of a training device(s) which requires HQDA approval.

**Transportability.** Capability of efficiently and effectively transporting an end item of military equipment or component, over railways, highways, waterways, ocean, and airways either by carrier, towed, or by self propulsion.

**Transportability Approval.** A statement by the MTMC (the Army transportability agent), that an item of materiel, in its shipping configurations, is transportable by the required mode(s) of transportation.

**Transportability Engineering Analysis.** An evaluation of the transportability of a materiel system/item and its components, auxiliary and ancillary equipment. An analysis will summarize its ability to be transported by the required modes of transportation.

**Transportability Report (TR).** A report submitted by the materiel developer or field unit on transportability problem items. All information necessary for a comprehensive transportability engineering analysis will be included.

**Type Classification (TC).** Identifies the life cycle status of a materiel system after a production decision by the assignment of a type classification designation, and records and status of a materiel system in relation to its overall life history as a guide to procurement, authorization, logistic support, and asset and readiness reporting. It is the Army implementation of the OSD designation "accepted for service use."

**Unified Command.** A command with a broad continuing mission under a single commander and composed of significant assigned components of two or more services, and which is established and so designated by the President, through the SECDEF with the advice and assistance of the JCS.

**User.** That command, unit or element which will be the recipient of the production item for use in accomplishing a designated mission.

**G****GLOSSARY OF TERMS**

User Representative. The combat developer that acts as the user in the development of materiel. TRADOC is the combat developer for all Army developed systems for use at corps level and below.

User Test. A generic term which encompasses operation test, force development test and experimentation, and joint tests.

Value Engineering (VE). Projects and studies designed to seek lowest costs for items and systems consistent with requirements performance and RAM.

Weapon System Management Team (WSMAT). Consists of a system WSSM (Chairperson) and functional area specialists. Membership is determined by the amount of activity of each specific weapon system and the functional areas to be covered.

Weapon System Staff Manager (WSSM). Acting for the Deputy Chief of Staff of Development, Engineering, and Acquisition and for the Deputy Chief of Staff of Supply, Maintenance, and Transportation after transition. Responsible for the system management functions during the entire acquisition cycle at HQ AMC.

Weapon System Support Officer (WSSO). Responsible for providing functional support to the WSSM. The WSSO is the single expert at HQ AMC knowledgeable in the details of the assigned weapon system(s) from the standpoint of his functional area.

Work Unit. The smallest segment into which research and technology efforts are normally divided for purposes of local administration.

**G.36**

**Appendix H**

**MASTER REFERENCE LIST**

## DEPARTMENT OF DEFENSE DIRECTIVES (DODD)

3222.2	DOD Electromagnetic Compatibility Program.
3224.1	Engineering for Transportability.
4105.62	Proposal Evaluation and Source Selection.
4120.3	Development Standard Programs.
4151.16	DOD Equipment Maintenance Program.
4156.1	DOD Coordinated Procedure Program Purchase Assignments.
4245.3	Design to Cost.
4245.6	Defense Production Management.
4245.7 -M	Transition from Development to Production.
5000.1	Major Systems Acquisition.
5000.3	Test and Evaluation.
5000.26	Defense Systems Acquisition Review Council (DSARC).
5000.34	Production Management.
5000.37	Acquisition and Distribution of Commercial Products (ADCP).
5000.39	Acquisition and Management of Integrated Logistics Support for Systems and Equipment.
5000.40	Reliability and Maintainability.
5000.43	Acquisition Streamlining.
5010.20	Work Breakdown Structures for Defense Materiel Items.
5530.3	International Agreements.

H.1

## DEPARTMENT OF DEFENSE INSTRUCTIONS (DODI)

2010.6	Standardization and Interoperability of Weapons Systems and Equipment Within the North Atlantic Treaty Organization.
2050.1	Delegated Approval Authority to Negotiate and Conclude International Agreements.
4151.9	DOD Technical Manual Program Management.
5000.2	Major Systems Acquisition Process.
5000.4	OSD Cost Analysis Improvement Group (CAIG).
5000.21	Forms Management Program.
5000.33	Uniform Budget/Cost Terms and Definitions.
5000.38	Production Readiness Reviews.
7000.2	Performance Measurement for Selected Acquisitions.
7000.3	Selected Acquisition Reports.
7000.10	Contract Cost Performance, Fund Status, and Cost/Schedule Status Reports.
7000.11	Contractor Cost Data Reporting.



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- 1-35 Basic Policies and Principles for Interservice, Interdepartmental, and Interagency Support.
- 5-4 Department of the Army Productivity Improvement Program (DAMRIP).
- 5-5 Army Studies and Analyses.
- 5-7 Defense Logistics Studies Information Exchange (RCS DD-I & L (AR) 1196).
- 5-8 Host-Supported Activity Relationships (Intraservice).
- 5-12 Army Management of the Electromagnetic Spectrum.
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- 10-5 Organization and Functions, Department of the Army.
- 10-16 United States Army Nuclear and Chemical Agency.
- 10-41 Organization and Functions, United States Army Training and Doctrine Command.
- 11-4 System Program Reviews (SPR).
- 11-7 Internal Review.
- 11-14 Logistic Readiness.
- 11-27 Army Energy Program.
- 11-18 Cost Analysis Program.
- 11-28 Economic Analysis and Program Evaluation for Resource Management.
- 15-14 Systems Acquisition Review Council Procedures.
- 15-18 Test Schedule and Review Committee.
- 18-1 Army Automation Management.

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- 34-1 United States Army Participation in International Military Rationalization, Standardization and Interoperability (RSI) Programs.
- 34-2 Rationalization, Standardization & Interoperability Policy.
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- 37-100-FY The Army Management Structure (AMS).
- 37-112 Management Accounting for RDTE Appropriation.
- 37-120 Army Procurement Appropriation (PA) Management Accounting and Reporting System (APARS).
- 37-200 Selected Acquisition Information and Management Systems (SAIMS).
- 40-5 Health and Environment.
- 40-10 Health Hazard Assessment Program in Support of the Materiel Acquisition Decision Process.
- 40-14 Control and Recording Procedures for Exposure to Ionizing Radiation and Radioactive Materials.
- 40-46 Control of Health Hazards from Lasers and Other High Intensity Optical Sources.
- 40-60 Policies and Procedures for the Acquisition of Medical Materiel.
- 40-61 Medical Logistics Policies and Procedures.
- 40-583 Control of Potential Hazards to Health from Microwave and Radio Frequency Radiation.
- 50-4 Safety Studies and Reviews of Nuclear Weapon Systems.
- 70-1 Systems Acquisition Policy and Procedures.
- 70-2 Materiel Status Recording.
- 70-3 Department of Defense Food Research, Development, Testing, and Engineering Program.
- 70-5 Grants to Nonprofit Organizations for Support of Scientific Research.
- 70-6 Management of Army Research, Development, Test and Evaluation Appropriation.
- 70-9 Army Research Information Systems and Reports.
- 70-10 Research, Development, and Acquisition - Test and Evaluation.
- 70-15 Product Improvement of Materiel.
- 70-16 Department of the Army System Coordinator (DASC) System.
- 70-17 System/Program/Project/Product Management.
- 70-21 Certification and Registration for Access to DOD Scientific and Technical Information.
- 70-23 The Technical Cooperation Program.
- 70-24 Special Procedures Pertaining to Nuclear Weapon System Development.

H.3

## H

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- 70-25 Use of Volunteers as Subjects of Research.
- 70-32 Work Breakdown Structure for Defense Materiel Items.
- 70-33 Mutual Weapons Development Data Exchange Program (MWDDEP) and Defense Development Exchange Program (DDEP).
- 70-37 Configuration Management.
- 70-38 Research, Development, Test and Evaluation of Materiel for Extreme Climatic Conditions.
- 70-41 Cooperation with Allies and Other Nations in Research and Development of Defense Equipment.
- 70-44 DOD Engineering for Transportability.
- 70-47 Engineering for Transportability.
- 70-50 Military Aircraft, Rockets, and Guided Missiles.
- 70-58 International Professional (Scientists and Engineers) Exchange Program.
- 70-60 Army Nuclear Survivability.
- 70-61 Type Classification of Army Materiel.
- 70-62 Airworthiness Qualification of U.S. Army Aircraft Systems.
- 70-64 Design to Cost.
- 70-66 United States - Canadian Defense Development Sharing Program.
- 70-69 Major Range and Test Facility Base.
- 70-72 Production Management.
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- 71-2 Basis of Issue Plan (BOIP) and Qualitative and Quantitative Personnel Requirements Information (QQPRI).
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- 190-13 The Army Physical Security Program.
- 200-1 Environmental Protection and Enhancement.
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- 210-21 Ranges and Training Areas.
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- 310-3 Preparation, Coordination, and Approval of Department of the Army Publications.
- 310-25 Dictionary of U.S. Army Terms.
- 310-31 Management System for Tables of Organization and Equipment (the TOE System).
- 310-34 Equipment Authorization and Utilization Policies and Criteria and Common Tables of Allowances.
- 310-49 The Army Authorization Documents System (AADS).
- 350-35 New Equipment Training.
- 350-38 Training Devices: Policies and Procedures.
- 380-5 DA Information Security Program.
- 380-10 Department of the Army Policy for Disclosure of Military Information to Foreign Governments.

H.4

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H

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- 381-1 Control of Dissemination of Intelligence Information.
- 381-11 Threat Support to US Army Force, Combat and Materiel Development.
- 385-10 Army Safety Program.
- 385-16 System Safety Engineering and Management.
- 405-10 Acquisition of Real Property and Interests Therein.
- 415-1 Report of Negotiated Construction Contracts and Modifications (RCS CONG-1051).
- 415-2 Department of Defense Construction Criteria.
- 415-10 General Provisions for Military Construction.
- 415-13 MCA Program, Disposal of Structures.
- 415-15 MCA Program Development.
- 415-16 Army Facilities Components System (Military Engineering Construction Support Designs, Materiel and Planning Data).
- 415-17 Cost Estimating for Military Programing.
- 415-20 Project Development and Design Approval.
- 415-22 Protection of Petroleum Installations and Related Facilities.
- 415-25 Facilities for Research, Development, Test and Evaluation.
- 415-28 Department of the Army Facility Classes and Construction Categories.
- 415-35 Minor Construction.
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- 550-51 Authority and Responsibility for Negotiating, Concluding, Forwarding, and Depositing of International Agreements.
- 570-2 Organization and Equipment Authorization Tables -Personnel.
- 600-200 Enlisted Personnel Management System.
- 602-1 Human Factors Engineering Program.
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- 611-1 Military Occupational Classification Structures.
- 611-101 Commissioned Officer Specialty Classification System.
- 611-112 Manual of Warrant Officer Military Occupational Specialties.
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- 700-XXX Materiel Release Fielding and Transfer.
- 700-18 Provisioning of US Army Equipment.
- 700-22 Worldwide Ammunition Reporting System (WARS).
- 700-47 Defense Standardization and Specification Program.
- 700-51 Army Data Management Program.
- 700-60 Department of Defense Parts Control Program.
- 700-90 Army Industrial Preparedness Program.
- 700-97 Logistics Capability Estimates (DSAR 4100.7).
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- 700-115 Environmental Control Equipment Policy.
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H.5

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 700-129 Logistics Management of Multi-Service Communications-Electronics Systems and Equipment.  
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 702-11 Army Quality Program.  
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 715-6 Proposal Evaluation and Source Selection.  
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 750-1 Army Materiel Maintenance Concepts and Policies.  
 750-4 Depot Materiel and Support Training Activities.  
 750-7 Installation Materiel Maintenance Activities.  
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 750-43 Test, Measurement, and Diagnostic Equipment (Including Prognostic Equipment and Calibration Test/Measurement Equipment).  
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H.6

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H.7

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H.8

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- 381-1 Threat Management.
- 600-4 Integrated Personnel Support.
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H.9

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**H**

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**H.10**

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483 Configuration Management Practices in Systems, Equipments, Munitions and Computer Programs.  
490 Specification Practices.  
680 Contractor Standardization Plans & Management.  
756 Reliability Prediction.  
759 Human Factors Engineering Design for Army Materiel.  
781 Reliability Design Qualification and Production Acceptance Tests: Exponential Distribution.  
785 Reliability Program for Systems and Equipment Development and Production.  
810 Environmental Test Methods and Engineering Guidelines.  
881 Work Breakdown Structure for Defense Materiel Items.  
882 System Safety Program For System and Associated Subsystems and Equipment Requirements For  
882-B System Safety Program Requirements.  
891 Contractor Spare Parts Control and Standardization Program.  
1388-1A Logistics Support Analysis.  
1388-2A Logistic Support Analysis Record.  
1456 Contractor Configuration Management Plans.  
1472-C Human Engineering Design Criteria For Military Systems Equipment and Facilities.  
1474 Noise Limits for Army Materiel.  
1528 Production Management.

## MILITARY SPECIFICATIONS

H46855 Human Engineering Requirements for Military Systems, Equipment and Facilities.  
S83490 Specifications, Types and Forms.  
Q9858 Quality Program Requirements.  
I-45208 Inspection Requirements.  
T-60530 Technical Data Packages for AMC Materiel.

## MILITARY HANDBOOKS (MIL-HDB)

189 Reliability Growth Management.  
727 Design Guidance for Producibility.  
759 Human Factors Engineering Design for Army Materiel.

## DEPARTMENT OF THE NAVY

NAVSOP-6071, Best Practices

**Appendix I**

**LIST OF ABBREVIATIONS AND ACRONYMS**

# LIST OF ABBREVIATIONS AND ACRONYMS

1

## A

AAE	Army Acquisition Executive
AAO	Authorized Acquisition Objective
ABOIP	Amended Basis of Issue Plan
ACAP	Army Cost Analysis Paper
ACN	Action Control Number
ACP	Army Capabilities Plan
AD	Advanced Development
ADARS	Army Defense Acquisition Regulation Supplement
ADCSCD	Assistant Deputy Chief of Staff (Combat Development)
ADCSTE	Assistant Deputy Chief of Staff (Test and Evaluation)
ADEA	Army Development and Employment Agency
ADP	Automatic Data Processing
AEP	Annual Execution Plan
AFG	Army Force Guidance
AFH	Army Family Housing
AG	Army Guidance
AIF	Army Industrial Fund
AMC	Army Materiel Command
AMC-R	Army Materiel Command-Regulation
AMMH	Annual Maintenance Man-Hours
AMMS	Acquisition Milestone Management System
AMSAA	US Army Materiel System Analysis Activity
AOP	Additive Operational Product
AP	Acquisition Plan
APDM	Amended Program Decision Memorandum
APP	Advanced Procurement Plan
APRB	Acquisition Plan Review Board
AQQPRI	Amended QPPRI
AR	Army Regulation
ARMB	Army Requirements and Management Board
AS	Acquisition Strategy
ASA	Army Strategic Appraisal
ASA (RDA)	Assistant Secretary of the Army (Research, Development and Acquisition)
ASAP	Army Streamlined Acquisition Process
ASARC	Army Systems Acquisition Review Council (replaced by ARMB)
ASD (MRA&L)	Assistant Secretary of Defense, Manpower, Reserve Affairs, and Logistics
ASF	Army Stock Fund
ASI	Additional Skill Identifier
ASIOE	Associated Support Items of Equipment
ASL	Authorized Stockage List
ATE	Automatic Test Equipment
ATSC	U.S. Army Training Support Center
AURS	Automated Unit Reference Sheets

1.1

## B

BAS	Battlefield Automated System
BCE	Baseline Cost Estimate
BDP	Battlefield Development Plan
BEG	Budget Estimate Guidance
BFY	Budget Fiscal Year
BITE	Built-in Test Equipment
BOA	Basic Ordering Agreement
BOC	Best Operational Capability
BOIP	Basis of Issue Plan
BOIPFD	BOIP Feeder Data
BTA	Best Technical Approach
BY	Budget Year

## C

CAA	Concepts Analysis Agency
CAC	Combined Arms Center
CACDA	Combined Arms Combat Development Activity
CAG	Cost Advisory Group
CAPCAT	Capability Category
CARDS	Catalog of Approved Requirements Documents
CBRS	Concept Based Requirements System
CBTDEV	Combat Developer
CCB	Configuration Control Board
CDR	Commander
CECDC	Cost Estimate Control Data Center
CEP	Concept Evaluation Program
CFP	Concept Formulation Package
CFY	Current Fiscal Year
CG	Commanding General
CG	Consolidated Guidance
CIP	Critical Intelligence Parameters
CLS	Contractor Logistic Support
CMP	Configuration Management Plan
COB	Command Operating Budget
COEA	Cost and Operational Effectiveness Analysis
CMDT	Commandant
COMSEC	Communications Security
CON	Contingency
CONOPS	Continuity of Operations
CONUS	Continental United States
CPR	Cost Performance Report
CRMP	Computer Resources Management Plan
CSA	Chief of Staff, Army
C/SCSC	Cost/Schedule Control Systems Criteria
CTA	Common Tables of Allowances
CTA	Central TMDE Activity
CTDR	Commercial Training Device Requirement
CTEA	Cost and Training Effectiveness Analysis

# LIST OF ABBREVIATIONS AND ACRONYMS

1

CTP Coordinated Test Program  
CY Calendar Year

## D

DA Department of the Army  
DAE Defense Acquisition Executive  
DALSO Department of the Army Logistics Support Officer  
DAMWO Department of the Army Modification Work Order  
DAP Designated Acquisition Program  
DAR Defense Acquisition Regulation  
DASA(A) Deputy Assistant Secretary of the Army (Acquisition)  
DASC Department of the Army System Coordinator  
DCG Deputy Commanding General  
DCP Decision Coordinating Paper  
DCSCD Deputy Chief of Staff for Combat Developments  
DCSDOC Deputy Chief of Staff, Doctrine  
DCSI Deputy Chief of Staff for Intelligence  
DCSLOG Deputy Chief of Staff for Logistics  
DCSOPS Deputy Chief of Staff for Operations and Plans  
DCSPER Deputy Chief of Staff for Personnel  
DCSRDA Deputy Chief of Staff for Research, Development and Acquisition  
DCSTE Deputy Chief of Staff for Test and Evaluation  
DDTE Director, Defense Test and Evaluation  
DECN Decision  
DEPSECDEF Deputy Secretary of Defense  
DG Defense Guidance  
DI Data Interchange  
DIA Defense Intelligence Agency  
DIO Director of Industrial Operations  
DIS Defense Investigative Service  
DOD Department of Defense  
DODD Department of Defense Directive  
DODI Department of Defense Instruction  
DOTSP Doctrinal and Organizational Test Support Package  
DR Data Requirement  
DRB Defense Resources Board  
DSARC Defense System Acquisition Review Council (replaced by JRMB)  
DSMC Defense Systems Management College  
DT Development Test(ing)  
DTC Design-to-Cost  
DTP Detailed Test Plan  
DTUPC Design-to-Unit Production Cost

## E

EA Environmental Assessment  
EARA Equipment Authorizations Review Activity  
ECA Early Comparability Analysis  
EQCM Electronic Counter-Countermeasures

1.3

## LIST OF ABBREVIATIONS AND ACRONYMS

ECM	Electronic Countermeasures
ECP	Engineering Change Proposal
ED	Engineering Development
EIS	Environmental Impact Statement
EMSEC	Emission Security
EPA	Extended Planning Annex
ET	Engineering Test
EW	Electronic Warfare
EY	Execution Year

## F

F&OC	Full and Open Competition
FA-IPT	First Article-Initial Production Test
FDTE	Force Development Test and Experimentation
FISO	Force Integration Staff Officer
FM	Field Manual
FMECA	Failure Mode Effects and Criticality Analysis
FMS	Foreign Military Sales
FOT&E	Follow-on Operational Test and Evaluation
FPD	Functional Purchase Description
FS	Feasibility Study
FSA	Foreign Systems Acquisition
FUED	First Unit Equipped Date
FY	Fiscal Year
FYDP	Five Year Defense Plan

## G

G&A	General & Administration Expenses
GFE	Government-Furnished Equipment

## H

HAC	House Appropriations Committee
HARDMAN	Hardware vs. Manpower
HASC	House Armed Services Committee
HEL	Human Engineering Laboratory
HFE	Human Factors Engineering
HFEA	Human Factors Engineering Analysis
HHA	Health Hazard Assessment
HO	Headquarters
HQDA	Headquarters, Department of the Army

## I

IACOP	International Armaments Cooperative Opportunities Plan
ICA	Independent Cost Analysis
ICE	Independent Cost Estimate
ICT	Individual and Collective Training



## LIST OF ABBREVIATIONS AND ACRONYMS

I

ICTP	Individual and Collective Training Plan
IE	Independent Evaluation/Evaluator
IEP	Independent Evaluation Plan
IER	Independent Evaluation Report
IKTP	Instructor/Key Personnel Training
ILS	Integrated Logistic Support
ILSMT	ILS Management Team
ILSP	Integrated Logistic Support Plan
IME	International Materiel Evaluation
IMMP	Information Mission Management Plan
INSCOM	Intelligence and Security Command
IOC	Initial Operational Capability
IOTE	Initial Operational Test and Evaluation
IPCE	Independent Parametric Cost Estimate
IPF	Initial Production Facilities
IPP	Industrial Preparedness Planning
IPR	In-Process Review
IPS	Integrated Program Summary
IR&D	Independent Research and Development
IRD&S	International Research, Development and Standardization

## J

JCS	Joint Chiefs of Staff
JIEP	Joint Intelligence estimate for Planning
JMSNS	Justification for Major System New Start
JOP	Joint Operating Procedure
JPAM	Joint Program Assessment Memorandum
JPO	Joint Program Office
JR	Joint Review
JRMB	Joint Requirements and Management Board
JSOR	Joint Services Operational Requirement
JSP	Joint Services Program
JSPD	Joint Strategic Planning Document
JSPS	Joint Strategic Planning System
JTA	Joint Table of Allowances
JTE	Joint Test and Evaluation
JWG	Joint Working Group

## L

LCC	Logistics Control Code
LCC	Life-Cycle Cost
LCSEC	Life-Cycle Software Engineering Center
LCSMM	Life-Cycle System Management Model
LEA	US Army Logistic Evaluation Agency
LIN	Line Item Number

I.5

## LIST OF ABBREVIATIONS AND ACRONYMS

LLI	Long Lead Items
LLT	Long Lead Time
LOGCAP	Logistics and Command Assessment of Projects
LOGCEN	US Army Logistic Center
LOI	Letter of Instruction
LP	Limited Procurement
LRIP	Low Rate Initial Production
LRRDAP	Long-Range Research, Development, and Acquisition Plan
LRS&TP	Long-Range Science and Technology Plan
LSA	Logistic Support Analysis
LSAR	Logistic Support Analysis Record

## M

MAA	Mission Area Analysis
MACOM	Major Command
MAD	Mission Area Deficiency
MADP	Materiel Acquisition Decision Process
MADP	Mission Area Development Plan
MADS	Mission Area Deficiency Statement
MAM	Mission Area Manager
MAMP	Materiel Acquisition Management Plan
MANPRINT	Manpower and Personnel Integration
MARB	Materiel Acquisition Review Board
MATDEV	Materiel Developer
MCA	Military Construction, Army
MDR	Milestone Decision Review
MFP	Materiel Fielding Plan
MI	Market Investigation
MIL STD	Military Standard
MILCON	Military Construction
MJWG	MANPRINT Joint Working Group
ML	Management Level
MMT	Manufacturing Methods and Technology
MOA	Memorandum of Agreement
MOS	Military Occupational Specialty
MOU	Memorandum of Understanding
MPA	Military Personnel, Army
MPM	Milestone Planning Meeting
MPT	Manpower, Personnel, and Training
MRD	Milestone Review Documentation
MRL	Materiel Requirements List
MRRB	Materiel Release Review Board
MRSA	Materiel Readiness Support Activity
MSC	Major Subordinate Command
MSP	Mission Support Plan
MTBF	Mean Time Between Failure
MTMC-TEA	Military Traffic Management Command-Transportation Engineering Agency

# LIST OF ABBREVIATIONS AND ACRONYMS

I

MTOE	Modified Table of Organization and Equipment
MTTR	Mean Time to Repair
MWDDEP	Mutual Weapons Development Data Exchange Program
MWO	Modification Work Order

## N

NAPR	NATO Armaments Planning Review
NATO	North Atlantic Treaty Organization
NBC	Nuclear, Biological, and Chemical
NDI	Nondevelopmental Item
NET	New Equipment Training
NETP	New Equipment Training Plan
NRC	Nuclear Regulatory Commission
NSC	National Security Council
NSN	National Stock Number
NTG	Non-Technical Generator

## O

1.7

O&M	Operator & Maintainer
O&O	Operational and Organizational
O&O Plan	Operational and Organizational Plan
O&S	Operating and Support
OACSI	Office of the Assistant Chief of Staff, Intelligence
OASD(C)	Office of the Assistant Secretary of Defense, Comptroller
OD(PA&E)	Office of the Director, Program Analysis and Evaluation
ODCSCD	Office of the Deputy Chief of Staff, Combat Developments
ODCSLOG	Office of the Deputy Chief of Staff, Logistics
ODCSOPS	Office of the Deputy Chief of Staff, Operations and Plans
ODCSPER	Office of the Deputy Chief of Staff, Personnel
ODCSRDA	Office of the Deputy Chief of Staff for Research, Development and Acquisition
OJCS	Organization of the Joint Chiefs of Staff
OMA	Operations and Maintenance Appropriation, Army
OMB	Office of Management and Budget
OMS/MP	Operation Mode Summary/Mission Profile
ONS	Operational Needs Statement
OPSEC	Operations Security
OSD	Office of the Secretary of Defense
OSUT	On-site User Testing
OT	Operational Test(ing)

# LIST OF ABBREVIATIONS AND ACRONYMS

OT&E	Operational Test and Evaluation
OTEA	Operational Test and Evaluation Agency
OTP	Outline Test Plan
OTRR	Operation Test Readiness Review
OTRS	Operational Test Readiness Statement
OTSG	Office of the Surgeon General
OUSD(P)	Office of the Under Secretary of Defense for Policy
OUSD(R&E)	Office of the Under Secretary of Defense for Research and Engineering
OYC	Out Year Costs

P

P3I	Pre-Planned Product Improvement
PAA	Procurement Appropriation, Army
PAM	Pamphlet
PARR	Program Analysis Resource Review
PBD	Program Budget Decision
PBG	Program and Budget Guidance
PBS	Production Base Support
PD	Program Directive
PDF	Program Data Form
PDM	Program Decision Memorandum
PDSSC	Post Deployment Software Support Center
PE	Program Element
PEP	Producibility Engineering and Planning
PI	Product Improvement
PIF	Provisions of Industrial Facilities
PIP	Product Improvement Proposal
PLL	Prescribed Load List
PM	Program/Project/Product Manager
PMCS	Program Management Control System
PMD	Program Management Document(ation)
PMO	Program Management Office
PMP	Program/Project Master Plan
PMSA	Project Management System Assessment
POC	Point of Contact
POL	Petroleum, Oils and Lubricants
POM	Program Objective Memorandum
PP	Procurement Plan
PPBERS	Program Performance and Budget Execution Review System
PPBES	Planning, Programing, Budgeting, and Execution System
PPBS	Planning, Programing, and Budgeting System
PPQT	Preproduction Qualification Test
PQT	Production Qualification Test
PR	Preliminary Review
PRIMIR	Product Improvement Management Information Report

# LIST OF ABBREVIATIONS AND ACRONYMS

1

PRR Production Readiness Review  
 PRS Program Status Report  
 PV Production Validation

## Q

QAP Quality Assurance Provisions  
 QMR Qualitative Materiel Requirement  
 QQPRI Qualitative and Quantitative Personnel  
 Requirements Information  
 QRC Quick Reaction Capability  
 QRP Quick Reaction Program  
 QRR Qualitative Research Requirement for Nuclear Weapons  
 Effects  
 QSOP Quadripartite Standing Operating Procedures  
 QSTAG Quadripartite Standardization Agreement

## R

R&D Research and Development  
 RAM Reliability, Availability, and Maintainability  
 RDA Research, Development, and Acquisition  
 RDT&E RDT&E Army  
 RFP Request for Proposal  
 RMR Resource Management Review  
 ROC Required Operational Capability  
 RQMTS Requirements  
 RRC Requirements Review Committee  
 RSI Rationalization, Standardization, and Interoperability

## S

S&I Standardization & Interoperability  
 S&T Science and Technology  
 SA Secretary of the Army  
 SAC Senate Appropriations Committee  
 SADM System Acquisition Decision Memorandum  
 SAG Study Advisory Group  
 SAR Selected Acquisition Report  
 SASC Senate Armed Services Committee  
 SBUP Soviet Battlefield Development Plan  
 SCP System Concept Paper  
 SDDM Secretary of Defense Decision Memorandum

1.9

SDR	Small Development Requirement
SECDEF	Secretary of Defense
SIGINT	Signal Intelligence
SIGSEC	Signal Security
SITC	Single Integrated Test Cycle
SLRP	Strategic Long-Range Plan
SMI	Soldier-Machine Interface
SMMP	System MANPRINT Management Plan
SN-CIE	Statement of Need - Clothing and Individual Equipment
SPA	Skill Performance Aids
SPR	System Program Review
SPTCEN	Support Center
SRO	System Readiness Objective
SSC-NCR	Soldier Support Center - National Capitol Region
SSG	Special Study Group
SSN	Standard Study Number
SSP	System Support Package
SSPP	System Safety Program Plan
STAR	System Threat Assessment Report
STD	Standard
STF	Special Task Force
STO	Science and Technology Objective

I.10

## T

T&E	Test and Evaluation
TA	Transportability Approval
TAFF	Test-Analyze-and-Fix
TAP	The Army Plan
TASC	Training and Audiovisual Support Center
TC	Type Classification
TD	Training Device
TDA	Table of Distribution and Allowances
TDNS	Training Device Needs Statement
TDP	Technical Data Package
TDP	Test Design Plan
TDR	Training Device Requirement
TDRRC	Training Device Requirements Review Committee
TE	Test Equipment
TEA	Training Effectiveness Analysis
TEA	Transportability Engineering Analysis
TEAM	Test, Evaluation, Analysis and Modeling
TECOM	Test and Evaluation Command
TELER	Telecommunications Requirement
TEMP	Test and Evaluation Master Plan
TFT	Technical Feasibility Testing
TILO	Technical Industrial Liaison Office

## LIST OF ABBREVIATIONS AND ACRONYMS

I

TISC	Technology Integration Steering Committee
TIWG	Test Integration Working Group
TJAG	The Judge Advocate General
TLCCS	Total Life Cycle Competition Strategy
TM	Technical Manual
TMDE	Test, Measurement, and Diagnostic Equipment
TMEC	TRADOC Materiel Evaluation Committee
TOA	Trade-Off Analysis
TOD	Trade-Off Determination
TOE	Table of Organization and Equipment
TP/UMF	Total Package/Unit Materiel Fielding
TR	Test Report
TR	Transportability Report
TRACE	Total Risk Assessing Cost Estimate
TRACE-P	Total Risk Assessing Cost Estimate for Production
TRADE	Training Device
TRADOC	US Army Training and Doctrine Command
TRADOC-R	Training and Doctrine Command Regulation
TRASANA	TRADOC Systems Analysis Activity
TRASSO	TRADOC Systems Staff Office
TSARC	Test Schedule and Review Committee
TSG	The Surgeon General
TSM	TRADOC System Manager
TSP	Test Support Package
TSP	Threat Support Plan
TT	Technical Testing
TT&E	Technical Test and Evaluation
TTRR	Technical Test Readiness Review

I.11

## U

USACTA	US Army Central Test Activity
USALEA	United States Army Logistic Evaluation Agency
USD(R&E)	Under Secretary of Defense for Research and Engineering
UT	User Testing

## V

VE	Value Engineering
----	-------------------

## W

WBS	Work Breakdown Structure
WSMAT	Weapon System Management Team

I

# LIST OF ABBREVIATIONS AND ACRONYMS

WSSM	Weapon System Staff Manager
WSSO	Weapon System Support Officer

Z

Z-LIN	Development Line Item Number
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I.12



**Appendix J**

**LETTER OF INSTRUCTION FOR INDUSTRY**

**REVIEW OF MATERIEL REQUIREMENTS DOCUMENTS**

DEPARTMENT OF THE ARMY  
HEADQUARTERS UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND  
FORT MONROE, VIRGINIA 23561-5000

HEADQUARTERS UNITED STATES ARMY MATERIEL COMMAND  
5001 EISENHOWER AVENUE, ALEXANDRIA, VIRGINIA 22333-0001

ATCD-ET/AMCDE-PQ

SUBJECT: Letter of Instruction for Implementation of Industry Review of  
Materiel Requirements Documents (MRD)

SEE DISTRIBUTION

1. Reference:

- a. AR 70-1, 12 November 1986, Systems Acquisition Policy and Procedures.
- b. AR 71-9, 20 February 1987, Materiel Objectives and Requirements.
- c. AR 380-5, 15 February 1985, Department of the Army Information Security Program, TRADOC Suppl 1 to AR 380-5, 21 October 1983.
- d. DA Circular 310-86-4, 15 August 1986, Distribution Statement and Warnings and Destructions Notices.
- e. TRADOC Reg 380-1, 17 May 1985, TRADOC Policy for Disclosure of Military Information to Foreign Governments.

2. General. The job of providing quality and effective materiel to our soldiers is a goal shared by both the U.S. Army and industry. Industry possesses the technical capability and expertise to greatly assist the Army in refining its materiel needs and offering alternatives early in the acquisition process. Because of this, interested members of industry will be provided the opportunity to review and make comments on materiel requirements documents early in their development.

3. Purpose. This letter sets forth policies and procedures for the participation of industry in the review of U.S. Army Materiel Requirements Documents (MRD). This letter sets forth responsibilities of various Army agencies, establishes procedures for submitting requirements documents to the Technical Industrial Liaison Office (TILO), outlines advertising procedures and the process for collecting and considering industry comments.

ATCD-ET/AMCDE-PQ

SUBJECT: Letter of Instruction for Implementation of Industry Review of  
Materiel Requirements Documents (MRD)

4. Responsibilities:

a. System Management Directorate, ODCSCD, HQ TRADOC.

- (1) Develop and publish policy for industry review of MRD.
- (2) Provide guidance to HQ TRADOC and school action officers.
- (3) As the Executive Agent of the TRADOC Requirements Review Committee (RRC), ensure that the requirement document has been reviewed by industry before recommendation for approval is given.

b. Mission Area Directorates, ODCSCD, HQ TRADOC.

- (1) Monitor materiel programs underway at associated proponent TRADOC schools to ensure that all MRD are provided to industry for review.
- (2) Act as the HQ TRADOC POC for associated proponent school actions dealing with review of MRD with industry.
- (3) Provide assistance to the school as necessary.
- (4) Participate, when possible, as a member of the Joint Working Group (JWG), which reviews all comments from industry.
- (5) Send approved materiel requirements documents to TILO, HQ AMC, and AMC Major Subordinate Command, TILO (AMC MSC TILO). All classified approved documents must be routed through the HQ TRADOC Disclosure Office.

c. Disclosure Office, HQ TRADOC.

- (1) Provide guidance to the Proponent School Security Offices, when requested, to ensure individual MRD are suitable for release.
- (2) Assist the Security Division, ODCSPAL, HQ TRADOC, in providing guidance to the school in the preparation of security instructions, which would accompany any classified MRD.
- (3) Determine releasability of classified and sensitive MRD proposed for release to foreign industry IAW reference 1e, upon notification of foreign interest by the AMC MSC TILO.

d. Security Division, ODCSI, HQ TRADOC. Assist the Proponent School Security Offices in providing guidance to ensure classified MRD have adequate classification guides/guidance.

ATCD-ET/AMCDE-PQ

SUBJECT: Letter of Instruction for Implementation of Industry Review of Materiel Requirements Documents (MRD)

e. Director of Combat Developments, TRADOC Proponent School and the Academy of Health Sciences (AHS).

- (1) Act as POC for the review of individual MRD.
- (2) Prepare, in coordination with the AMC MSC TILO, the Commerce Business Daily (CBD) announcement advertising the availability of the draft MRD.
- (3) Process CBD announcement through the Post Procurement Office.
- (4) Coordinate with Post Security Office to ensure that classified documents are suitable for release. Prepare security classification and distribution guidance in coordination with Proponent School Security office if adequate security classification and distribution guidance does not exist.
- (5) Send copy of draft MRD to the appropriate AMC MSC TILO.
- (6) Review industry comments at the Joint Working Group (JWG).
- (7) Incorporate appropriate comments into the MRD.

f. Army Information for Industry Manager. The Army Information for Industry (IFI) Manager at AMC Laboratory Command (AMC LABCOM) will be responsible for coordinating the release of all draft and approved MRD through the appropriate AMC MSC TILO to members of industry.

g. AMC MSC TILO.

- (1) The appropriate MSC TILO, in coordination with the AMC LABCOM IFI Manager will be responsible for the release of all draft MRD to members of industry IAW procedures of para 5.
- (2) Concurrently obtain HQ TRADOC Disclosure Office and HQ AMC approval to release classified and sensitive MRD to foreign industry.
- (3) Consolidate list of interested members of industry and verify clearance/need-to-know.
- (4) Compile all industry comments and forward to the TRADOC proponent school for use in the JWG.

h. U.S. Army Medical Materiel Development Activity (USAMMDA). Perform same functions as listed in 4g for all medical systems in coordination with the Academy of Health Sciences.

SUBJECT: Letter of Instruction for Implementation of Industry Review of  
Materiel Requirements Documents (MRD)

i. Army Training Support Center.

(1) Perform same functions as listed in 4b for all system and non-system training devices requirements.

(2) Monitor and provide assistance to the schools in the review of system training device requirements to industry.

(3) As the Executive Agent of the TRADOC Training Device Requirements Review Committee, ensure that each MRD has been staffed with industry before recommendation for approval is given.

j. Directorate of Training Developments, TRADOC Proponent School. Perform the same functions as listed in 4e for system and non-system training requirements.

k. Security Office. Proponent TRADOC School.

(1) Review classified and sensitive MRD being prepared for industry review to ensure that the draft document is suitable for release.

(2) Prepare the security instructions to accompany any classified draft MRD.

(3) Assists the DCD in preparation of security classification guidance/guides if adequate security classification guidance/guides does not exist.

(4) Review all classified MRD for proper security classification markings prior to release.

(5) Coordinate the disposition of classified and sensitive MRD proposed for release to foreign industry with HQ TRADOC Disclosure Office for release determination IAW reference e.

5. Procedures.

a. All draft MRD will be made available for industry review using the procedures outlined in this LOI. These procedures are graphically portrayed at Encl 5. Exceptions to this policy must be coordinated with the appropriate mission area directorate, ODCSCD, HQ TRADOC.

b. The MRD will be provided to interested members of industry during the staffing of the first draft document. Sufficient time must be provided to industry for them to properly review and make comment on each document.

ATCD-ET/AMCDE-PQ

SUBJECT: Letter of Instruction for Implementation of Industry Review of  
Materiel Requirements Documents (MRD)

A minimum of 30 days (for O&O Plans and JMSNS) and 60 days (for ROC, and JSOR) will be given to industry for this review. The basic document, the Operational Summary/Mission Profile Annex and the Rationale Annex will be provided to industry for review. Other annexes will not be included in this submittal. Funding data will not be provided with the above documentation.

c. The CBD will be the medium used to advertise the availability of a draft MRD for review and comment by interested members of industry. All CBD announcements will be prepared by the DCD or DTD at the proponent school and processed through their Post Procurement Office. Fourteen days should be planned from the submission of CBD announcement to the Post Procurement Office until the date of publication. The school should telephonically coordinate the CBD announcement with the AMC MSC TILO. An example CBD announcement is at Encl 1. At a minimum the CBD announcement should contain:

- (1) Type document to be reviewed.
- (2) Date response should be received at TILO.
- (3) Security clearance, if required.
- (4) No cost to government.

d. Concurrent with the advertising in the CBD, the proponent TRADOC school forwards draft MRD to the appropriate AMC MSC TILO with date the CBD announcement will be published. A listing of AMC MSC TILO is at Encl 4. The TRADOC proponent school is responsible for writing the LOI (Encl 2) and the Security Instructions (Encl 3) and classification and distribution guidance and will forward all to the AMC MSC TILO with the requirements document.

e. Industry requests for the MRD will be sent directly to the AMC MSC TILO. AMC MSC TILO will only accept industry requests for review of draft MRD which are received within 7 days from date the CBD announcement is published.

f. Within 14 days from date CBD announcement is published, AMC MSC TILO will consolidate list of interested industry, confirm clearance/need-to-know/approved storage (if MRD is classified), and release the draft MRD to members of industry. The Defense Investigative Service Personnel Investigations Center (PIC) - Central Verifications Activity (CVA)(301) 633-4820, must be contacted to verify contractors clearances and storage capabilities prior to forwarding them any material. This can be done by the TILO or by the local AMC Security Office which supports the TILO.

ATCD-ET/AMCDE-PQ

SUBJECT: Letter of Instruction for Implementation of Industry Review of  
Materiel Requirements Documents (MRD)

g. All classified, draft MRD, destined for foreign industrial recipients, are to be coordinated by the AMC MSC TILO concurrently with the HQ TRADOC Disclosure Office and HQ AMC Security Office for prior disclosure authority. This procedure may result in the foreign industrial recipient being given less than 30 days (60 days) to review the document.

h. During the development of the document, DCD/DTD will coordinate with the Post Security Office to ensure that each classified draft MRD is suitable for release. HQ TRADOC Disclosure Office will provide guidance and assistance where appropriate. Special security instructions and classification guidance will be required to be sent with all classified documents. An example security instruction is attached at Encl 3. See Appendix E, reference 1e for classification guide instructions.

i. All draft MRD will be released by the appropriate AMC MSC TILO. An LOI outlining the purpose of the review will be sent with each document. An example of this letter is provided at Encl 2.

j. Within 45 days (75 days for ROC and JSOR) from date CBD announcement is published, industry comments/recommendations must be received by the AMC MSC TILO. Only written comments/recommendations will be accepted and those received beyond the due date will be returned. TILOs will not accept unsolicited proposals as a response to the release of draft MRD.

k. Within 50 days (80 days for ROC and JSOR) from date CBD announcement is published, AMC MSC will compile all responses and forward directly to the TRADOC proponent school for Joint Working Group (JWG) review.

NOTE: Suspense dates above are firm and will be established based upon date CBD announcement is published. TILO will ensure compliance.

l. All comments will be reviewed at the JWG at the conclusion of the worldwide staffing of the document. The JWG chairman will inquire of all participants whether they have any conflict of interest as defined by AR 600-50. JWG minutes will reflect this inquiry. Consideration will be given to every industry comment. The chairman should caution the JWG members to guard against incorporating industry input into an MRD that defeats a truly competitive situation. Comments will be incorporated into the MRD where appropriate. A summary listing the approved comments, and the total number of comments received, will be attached as an Encl 3 to the letter of transmittal forwarding the requirements document to HQ TRADOC for approval processing. Industry participation in the JWG is precluded.

ATCD-ET/AMCDE-PQ

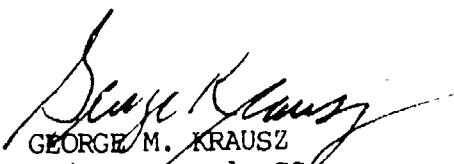
SUBJECT: Letter of Instruction for Implementation of Industry Review of  
Materiel Requirements Documents (MRD)

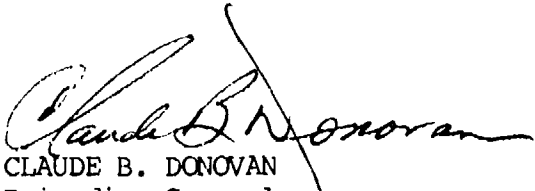
6. Release of approved MRD. Approved MRD will be sent to HQ AMC for reference. A copy (basic document only) will be sent to the appropriate AMC MSC TILO for release to industry, as requested. This release will be coordinated with the LABCOM IFI manager. All classified approved documents will be processed through the HQ TRADOC Disclosure Office before going to the AMC MSC TILO.

7. Addressees are requested to provide proposed changes to this LOI to Headquarters TRADOC (ATTN: ATCD-E) or Headquarters AMC (ATTN: AMCDE-PQ). The LOI will be revised one year from the date of publication.

FOR THE COMMANDERS:

5 Encls

  
GEORGE M. KRAUSZ  
Major General, GS  
Deputy Chief of Staff  
for Combat Developments

  
CLAUDE B. DONOVAN  
Brigadier General  
Deputy Chief of Staff  
for Development, Engineering  
and Acquisition

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USA CECOM (AMSEL-POD-PL)  
USA ARDC (SMCAR-RAM)  
USA BENET WEAPONS LAB (SMCAR-LCB-TP)  
USA CML R&D CEN (SMCCR-OTT)  
USA AVSCOM (AMSAV-NR)  
USA AMCCOM (AMSMC-RDP-I)  
USA TACOM (AMSTA-NKTE)  
USA TROSCOM (STRBE-HS)  
ADEA (AMSTB-T-I)  
HSC (HSOP-SP)  
USAMMDA (SGRD-UMS-L)

COMMANDANTS TRADOC SVC SCH

(EXCEPT USA ELM, SCHOOL OF MUSIC; USACGSC; DINFOS  
DLIFLC; USASGM ACADEMY)  
AHS (HSHA-CDM)  
USA MICOM (AMSMI-RN)



COMMERCE BUSINESS DAILY (CBD) ANNOUNCEMENT

EXAMPLE

Commander \_\_\_\_\_ (School) \_\_\_\_\_, ATTN: (Action Office) \_\_\_\_\_ Fort \_\_\_\_\_

A \_\_\_\_\_ (Name of System) \_\_\_\_\_. A draft of the (O&O Plan, ROC, etc.,) document will be available on approximately \_\_\_\_\_. The draft \_\_\_\_\_ will be made available to industry for comments and recommendations concerning technology and cost trade-offs that may be useful in refining the Army requirement. (One sentence description of the system.) Any desired response to the offering must be made at no cost to the government. Members of the industrial community who (possess a SECRET DOD clearance)\* and desire a copy of the draft \_\_\_\_\_ for review should provide a written request to (Name, address and phone number of AMC MSC TILO) NLT \_\_\_\_\_ \*\*. The request will contain a current or recent DOD contract number and the name and phone number of the DOD contract monitor. Failure to respond to the announcement by the date indicated herein waives any obligation of the government to subsequently provide this document until after approval of the document is obtained.

This is Not a Request for Proposal

\* Use only for classified documents.

\*\* The NLT date for industry to request the draft MRD will be 7 days from the date the CBD announcement is published.

SUBJECT: Letter of Instruction for Industry Review of (Name of System)

(Members of Industry)

1. This letter sets forth procedures and guidance to be used by those members of industry who are participating in the Industry Review of U.S. Army Requirements Documents Program for the (Name of System). This letter provides the general guidance for industry review of the requirements documentation and the Army points of contact for this program.
2. Materiel acquisition consists of improving an existing system, procuring an already developed system or developing a new system. The procedure stresses selection of the most cost and operationally effective means of achieving the needed capability. Requirements documents are used to describe this need. The requirements document contains the essential characteristics required of the operational system and is the standard against which the system is measured to determine acceptability for introduction into the Army inventory.

Because of the ever increasing potential challenges to our Armed Forces, the expanding scope of technology and the continuous limitations on our resources and funding, highly innovative and cost effective solutions to Army needs are required. Providing high quality and effective materiel to our soldiers is a goal shared by both the U.S. Army and industry. Industry possesses the technical capability and expertise to greatly assist the U.S. Army in refining its materiel needs and offering alternatives early in the acquisition process.

With this in mind, the Commanders of the U.S. Army Training and Doctrine Command (TRADOC) and U.S. Army Materiel Command (AMC) jointly agreed to institute a program requesting industry participation early in the materiel acquisition process. Interested members of industry are asked to review and make comments on materiel requirements documents early in its development.

3. The challenge to industry, as envisioned in this program, is to help the U.S. Army develop a new materiel system that is reliable, efficient, and cost effective. This requirement must be met within funding and time restraints imposed on the system. Specifically, you are asked to help review and comment on the (Name of System) (Encl 1). Your comments will then be evaluated by a TRADOC/AMC Joint Working Group (JWG) and incorporated into the requirements document as appropriate.

Primary emphasis should be directed toward technical content and feasibility of the system. Sustainability and maintainability of the system are also of paramount importance. The system must not be so complex that practical methods to train or retrain cannot be incorporated. You in

SUBJECT: Letter of Instruction for Industry Review of (Name of System)

industry are in a position to assist us in defining the total systems requirements. If there is a cheaper way to meet our requirements, we need you to help us find it.

4. Any comments and recommendations resulting from your review of the \_\_\_\_\_ should be sent in letter form to Army Materiel Command Major Subordinate Command Technical Industrial Liaison Office (AMC MSC TILO) ATTN: \_\_\_\_\_ (Address). Industry comments must be received at this address by close of business \_\_\_\_\_. An JWG will meet at Fort \_\_\_\_\_ to evaluate all industry comments and will revise the \_\_\_\_\_ as necessary.

You are encouraged to disclose all relevant information and not withhold something because it is proprietary. Additionally, you should not impose an ad hoc designation of proprietary to part of your submission to gain a competitive edge. We are only interested in comments and/or recommendations on requirements and not unsolicited proposals. Any unsolicited proposal received in response to the staffing of draft Materiel Requirements Documents (MRD) with members of industry will not be accepted by the government and will be returned.

It must be understood that any response that industry may wish to provide to this requirements document must be made at no cost to the government. The government will assume no obligation, responsibility, or liability for incorporation of any of the comments/recommendations provided. Any response submitted must be with unlimited rights for the use of the data therein. Written comments provided will be the sole basis for government evaluation and further communication will not be necessary. This draft reflects current Army thinking on the need for this or a similar item/system and does not reflect an official Army position or guarantee that this item/system will not be changed, revised, or withdrawn.

5. U.S. Army Point of Contacts for industry are as follows:

AMC MSC TILO POC:.....\_\_\_\_\_.

HQ TRADOC POC:.....\_\_\_\_\_.

\_\_\_\_\_ School POC:.....\_\_\_\_\_.

6. Security instructions for the handling of this document are outlined at Encl 2.

7. Any answers given to a contractor in response to a question asked regarding the draft MRD will be provided to all contractors.

SUBJECT: Letter of Instruction for Industry Review of (Name of System)

8. You may obtain a copy of the approved MRD by contacting AMC Laboratory Command (AMC LABCOM) Army Information for Industry Manager at (202) 394-2687.

9. The better we do in defining the requirement, the better the new system will be and the quicker it will be fielded. Industry can, and will, play a vital role in helping define U.S. Army requirements for the \_\_\_\_\_. Your efforts and assistance in the development of the \_\_\_\_\_ requirements are greatly appreciated and should result in a more successful Army development program.

10. Request acknowledgement of receipt and understanding of these instructions within 15 days from date of receipt to (Specify AMC MSC TILO).

3 Encls

## SECURITY INSTRUCTIONS

The attached Draft \_\_\_\_\_ document for the \_\_\_\_\_ is released for your review and comments, but the following stipulations apply:

a. Intelligence material released does not become the property of the contractor and may be withdrawn at any time.

b. The contractor will maintain a record of intelligence material (including CONFIDENTIAL) released to his custody, disposed of or destroyed, produced and held by the contractor.

c. The contractor will not reproduce the intelligence material without permission of AMC MSC TILO. If such permission is received, the contractor will control and account for such reproductions in the same manner as for the original.

d. Prior to granting an employee access to the intelligence material, the contractor will brief the employee on his obligation to safeguard the information and that the employee will be debriefed when access to the material is terminated. The contractor will be instructed to execute a separate Defense Investigative Service (DISCO) 482 "Security Briefing and Termination Statement" for each cleared employee who will be afforded access to the classified intelligence material. In such cases, the DISCO Form 482 will be appropriately annotated to indicate that a special briefing relative to safeguarding the intelligence material has been given.

e. The contractor will maintain records, by name and title, of all employees and authorized visitors who have access to the intelligence material.

f. The contractor will not release intelligence material to any activity, employee or other person not directly engaged in providing services under the contract unless specific written authorization for such release is received from the releasing agency. This prohibition precludes release without authority to another contractor, a subcontractor, Government Agency, private individual or organization.

g. Intelligence material, whether or not bearing a control marking, will not be released to any foreign nationals or immigrant aliens regardless of their position or level of their security clearance, except with the specific permission of the originating agency.

h. Intelligence material released to a contractor will not be destroyed unless written instruction is received from the releasing agency. When so authorized, the contractor will destroy such material in accordance with instructions contained in the Industrial Security Manual.

i. Upon expiration of the contract, all intelligence material will be returned to MSC TILO unless written authorization to retain or destroy the material is granted by the releasing agency. Contractor request to retain intelligence material after contract expiration will be directed to the releasing agency through the appropriate contracting officer and shall clearly indicate the justification for retention and the period of time retention is necessary.

j. WARNING: INFORMATION SUBJECT TO EXPORT CONTROL LAWS. This document contains information subject to the International Traffic in Arms Regulation (ITAR) or the Export Administration Regulation (EAR) of 1979 which may not be exported, released, or disclosed to foreign nationals inside or outside the United States without first obtaining an export license. A violation of the ITAR or EAR may be subject to a penalty of up to 10 years imprisonment and a fine of \$100,000 under 22 U.S.C. 2778 or Section 2410 of the Export Administration Act of 1979. Include this notice with any reproduced portion of this document.

k. The Classification Guide for the available from the Defense Technical Information Center, AD B950726, will be used as classification guidance for information generated under this program.

U.S. ARMY INFORMATION FOR INDUSTRY PROGRAM

Dr. C. J. Chatlyne  
Manager, Army Information for  
Industry Program  
U.S. Army Laboratory Command  
ATTN: AMSLC-TT-TI  
2800 Powder Mill Road  
Adelphi, Maryland 20783-1145  
(202) 894-2687  
AV 290-2687

TECHNICAL AND INDUSTRIAL LIAISON OFFICES

U.S. Army Materiel Command  
ATTN: AMCLD-TILO  
Alexandria, VA 22333-0001  
(202) 274-8948  
AV 284-8948

U.S. Army Armament, Munitions & Chemical Command

HQ, U.S. Army Armament R&D Center  
ATTN: SMCAR-RAM  
Dover, New Jersey 07801-5001  
(201) 724-6978/6047  
AV 880-6978/6047

HQ, U.S. Army Benet Weapons Laboratory  
ATTN: SMCAR-LCB-TP  
Watervliet, New York 12189-5000  
(518) 266-5734/5812  
AV 974-5734/5812

HQ, U.S. Army Chemical R&D Center  
ATTN: SMCCR-OTT  
Aberdeen Proving Ground, Maryland 21010-5423  
(301) 671-2031/5432  
AV 584-2031/5432

HQ U.S. Army Aviation Systems Command  
ATTN: AMSAV-NR  
4300 Goodfellow Boulevard  
St Louis, Missouri 63120-1798  
(314) 263-1082  
AV 693-1082

U.S. Army Medical Materiel Development Activity  
(USAMMDA)  
ATTN: EGRD-UMS-I  
Fort Detrick, Maryland 21701-5007  
AV 343-7571

HQ, U.S. Army Communication-Electronics Command  
ATTN: AMSEL-ATDD-TI  
Fort Monmouth, New Jersey 07703-5000  
(201) 544-4341/2240  
AV 995-4341/2240

HQ, U.S. Army Development and Employment Agency  
ATTN: AMSTB-T-I  
Fort Lewis, Washington 98433-5000  
(206) 967-8291  
AV 357-8291

HQ, U.S. Army Missile Command  
ATTN: AMSMI-RN  
Redstone Arsenal, Alabama 35898-5243  
(201) 876-4270/5270  
AV 746-4270/5270

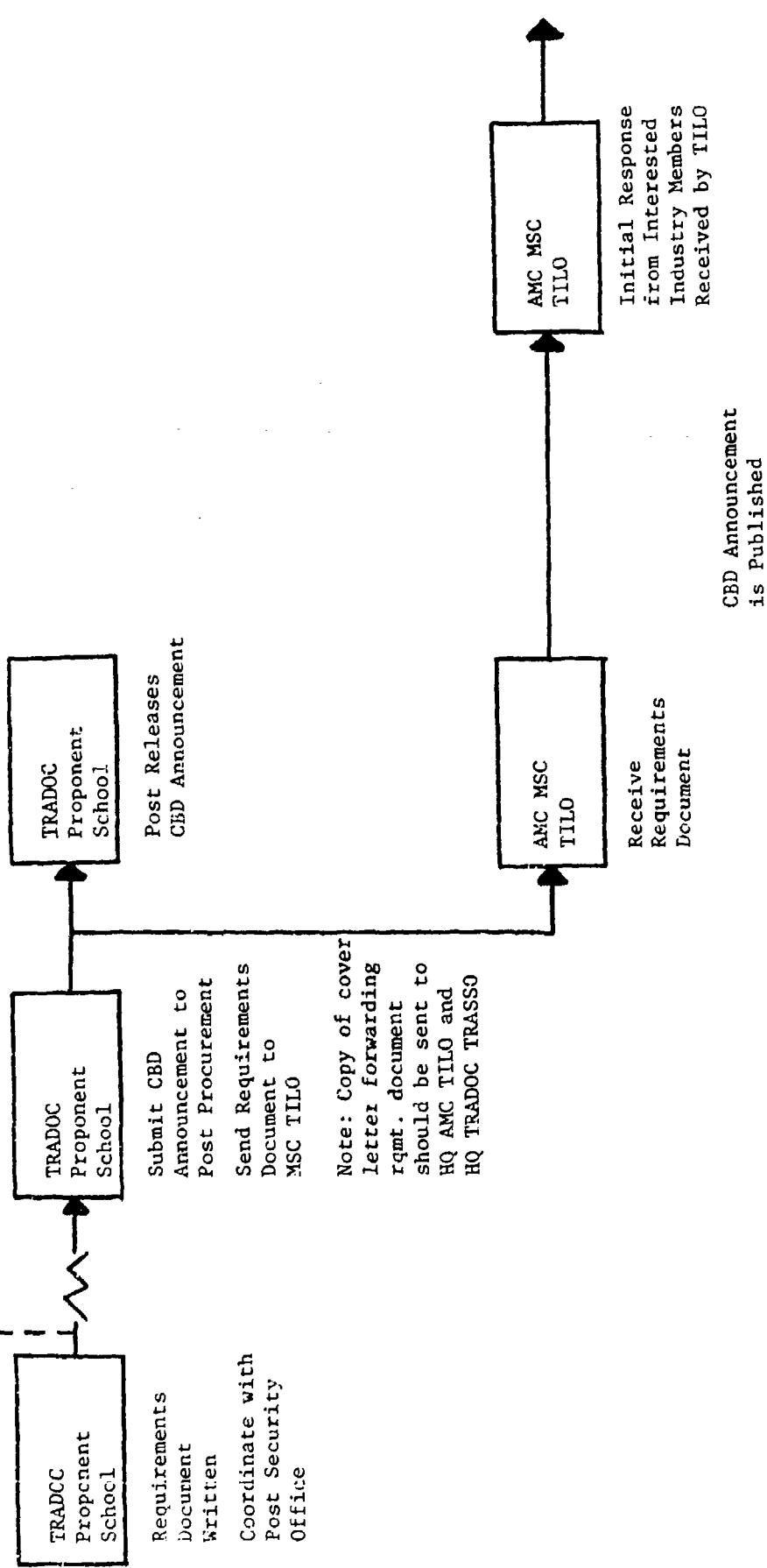
HQ, U.S. Army Tank Automotive Command  
ATTN: AMSTA-NKTE  
Warren, Michigan 48397-5000  
(313) 574-6372/6505  
AV 786-6372/6505

HQ, U.S. Army Belvoir R&D Center  
ATTN: STRBE-HS  
Ft Belvoir, Virginia 22060-5606  
(703) 664-1068  
AV 354-1068



# STAFFING A REQUIREMENTS DOCUMENT WITH INDUSTRY

Normal staffing of Requirements Document



JWG - 87 days

JWG - 94 days

JWG - 101 days

JWG - 108 days

ROC, JSOR:

JWG - 57 days

JWG - 64 days

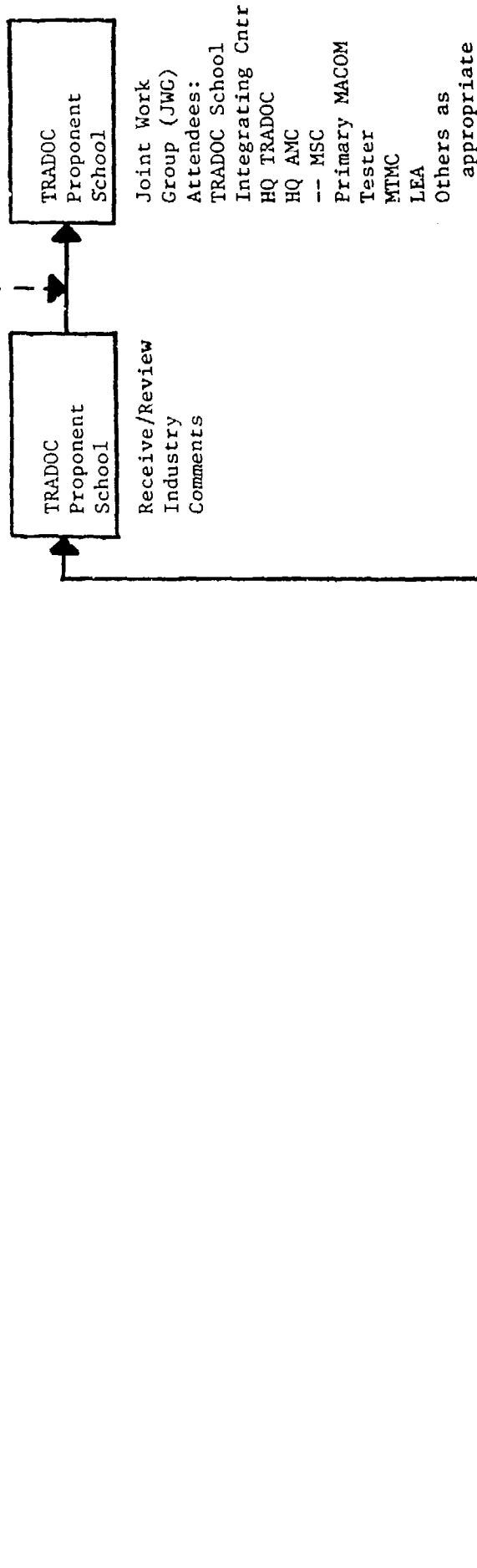
JWG - 71 days

JWG - 78 days

O&O Plan, JMSNS

# STAFFING A REQUIREMENTS DOCUMENT WITH INDUSTRY

Normal staffing of Requirements Document



**Appendix K**

**INTERNATIONAL ARMAMENT COOPERATIVE  
OPPORTUNITIES**

## Description

This appendix describes the factors that must be considered in order to assure that foreign materiel/technology is adequately evaluated in materiel acquisition programs. It also notes the assistance available to the MSCs to achieve this objective. The specific purposes of this chapter are to ensure that:

a. Consideration is given to NATO, other allies, and friendly foreign nation participation in any new program at the beginning of the acquisition system.

b. The program begin considered will be standardized, or at least interoperable, with the forces of the Navy, Air Force, and those of our allies.

c. Consideration is given to systems/subsystems/products, of other nations in order to reduce cost, improve interoperability, and reduce fielding time.

The AMC Commodity-Oriented MSCs/PMs will ensure that opportunities to conduct cooperative research and development projects with NATO partner nations and other allies are considered early in the formal development review process in connection with any planned project and that foreign technology and NATO standardization/interoperability considerations are an integral part in the planning and execution of all programs/projects. This effort is detailed in an International Armaments Cooperative Opportunity Plan (IACOP) which is a required document of the Materiel Acquisition Decision Process (MADP) reviews. The IACOP will be prepared using the draft AMC pamphlet, IACOP Handbook.

Consideration is given to the compatibility of the U.S. system/item with those of NATO and other friendly foreign nations. This will be accomplished by--

a. Determining if the requirements documents contain consideration of the needs of allies. Consider alteration of the specifications to satisfy allied requirements. (Sometimes a slight modification of the U.S. requirement will satisfy need of U.S. and NATO countries.)

b. Conducting a Market Analysis (Market Survey/Market Investigation) (AR 70-1) to determine if a similar system/subsystem/network exists, and if so, consider as an alternative by item, by foreign industry, and/or by foreign government.

K.1

c. Identifying all applicable Standardization Agreement (STANAGs) and Quadripartite Standardization Agreement (QSTAGs). Search AMC/USASAC database and conduct an indepth review for compliance (AR 34-1).

d. Reviewing the International Materiel Evaluation (IME) programs conducted by the U.S. Determine what system/subsystem/network and countries are involved (AMC-R 70-62).

e. Identifying potential for cooperation by considering--

(1) Ongoing or proposed test and evaluation of foreign system/subsystem.

(2) Ongoing cooperative R&D efforts under established international agreements.

(3) Availability of Data Exchange Agreements (AR 70-33) for exchange of technical data.

(4) Proposed co-production agreements.

(5) Foreign logistics support requirements.

Evaluate potential for foreign involvement by determining the appropriate format in the Army Streamlined Acquisition Process (ASAP) (Requirements and Technology Base, Proof of Principle, or Development Proveout). Specify how the foreign government/contractor/component will be involved.

**K.2**

Consider placement of development contracts that provide for Arms Cooperation. Consider co-production and/or dual production. Determine if there is proprietary information included in the contractors proposal that may be refused to foreign governments/contractors. Consider patented items and intellectual property rights.

If there are no provisions for cooperation in the current effort, consider--

a. Product Improvement through allied follow-on efforts.

b. European/allied warhead/component fitted to existing system.

c. Subsystems/components for side-by-side testing with those of another country using Nunn Amendment funds.

Weigh the advantages and disadvantages of Arms Cooperation. Consider:

- a. Impact on cost, schedule, and technical performance if foreign governments/contractors involved.
- b. Impact on U.S. budget (use of foreign funds).
- c. Impact on production base.
- d. Security risk.
- e. Critical technology risk assessment.
- f. Level of technology to be transferred.
- g. Configuration control.

Consider offsets. Determine how production will be prorated.

If the decision is to use foreign equipment, determine who controls the Technical Data Package (TDP) and configuration management. Identify patents and methods of patent transfer (contractor-to-contractor or government-to-government).

Identify and request required waivers and deviations from the Federal Acquisition Regulations (FAR), the Army Export Control Act (AECA), and the International Traffic in Arms Regulations (ITAR).

Consider resources involved in Arms Cooperation and the need for--

- a. An international program office.
- b. Test and evaluation support.
- c. Training for foreign soldiers.
- d. Quality assurance teams for training OCONUS.
- e. Integration of training into U.S. requirements.
- f. Scope of training for foreign nations.
- g. Language considerations.
- h. Training costs to include additional computers, software, and equipment.

Interface with foreign governments.

**K.3**

Under national disclosure policy, classified military information is available to foreign governments and contractors provided a need-to-know is established and necessary clearance is obtained on a case-by-case basis. DOD policy provides that sources in countries with whom DOD has Memorandums of Understanding (MOUs) and Offset arrangements will be provided access to installations; will be permitted to participate in individual and pre-award conferences; and will be provided data relating to the above to the same extent as U.S. sources. The Technical Industrial Liaison Office (TILO), HQ AMC is the designated interface for requests for planning and requirements documents. Denial of access requires action at an organizational level no lower than the under secretary or director of a defense agency.

General MOUs provide that DOD will solicit products from countries with which the U.S. has signed agreements. Defense Acquisition Circular 76-25, which documents part of section VI of the Defense Acquisition Regulation (DAR), provides procedures for the solicitation and evaluation of offers from countries which have an MOU, a Foreign Military Sale (FMS)/Offset Arrangement or a defense cooperation agreement with the U.S.

**K.4**

Evaluation of bids and proposals from prime contractors and subcontractors of countries with general MOUs need not include a price differential under the Buy America laws and regulations nor cost of import duties. However, MOUs do not apply to those items set aside for the mobilization base (with the exception of Canada which is considered part of the U.S. mobilization base), or to items restricted to U.S. sources by statutes (ships, jewel bearings, specialty metals, nonperishable substances, clothing and textiles, small business set asides, etc.).

Release of information to or collection of information from allies and other friendly countries prior to program initiation is accomplished through the following existing programs:

a. Mutual Weapons Development Data Exchange Program (MWDDEP) and Defense Development Exchange Program (DDEP). These two programs provide for the exchange of technical and scientific information of mutual interest to participating nations through the exchange of correspondence, technical documents, and by visits of technical personnel. Agencies authorized to initiate contacts are identified within the provisions of these agreements as "authorities." The Assistant Deputy Chief of Staff for International Plans and Programs, AMC, is known under these agreements as the project officer (PO). The PO has overall management responsibility and disclosure authority for these agreements. A Technical Project Officer (TPO) and Associate Technical Project Officers (ATPOs) are appointed for each agreement by the PO to perform technical supervision of the exchange.

b. The Technical Cooperation Program (TTCP). This program provides a channel for the United States, the United Kingdom, Canada, Australia, and New Zealand to become acquainted with each other's military research and development efforts and to provide a means to carry out cooperative programs. The objectives of the program are fulfilled by a policy, managerial, and support organizations consisting of Non-Atomic Military Research and Development (NAMRAD) Principals, Washington Deputies, sub-groups and action groups, and technical liaison groups, as required. The Assistant Deputy Chief of Staff for International Plans and Programs, AMC, manages the Army participation in TTCP and is the release authority for the Army R&D information under TTCP.

c. Memorandum of Understanding (MOU). These country-to-country agreements can be written to cover cooperative development, cooperative production, cooperative testing, the exchange of personnel or about anything else that requires the expenditure of funds for a cooperative international program. The MOU is not a method of acquiring new funds; it is a method of gaining approval for the expenditure of existing funds on international programs. The project managers are responsible for overall management with guidance from AMC and DA.

d. Staff Talks. Staff talks provide a forum for bilateral discussions between the United States and the United Kingdom, France, or Germany. CG, TRADOC, has been identified as the Department of the Army executive agent for this program. The Staff Talks address concept and doctrine harmonization. In addition, the talks with Germany have been expanded to cover materiel standardization and interoperability.

e. American, Britain, Canada, and Australia (ABCA) Armies Standardization Program. The ABCA Armies Standardization Program provides specific procedures for staffing of requirements documents with other participating countries. The program is structured to encourage evolution from requirements documents to cooperative programs. A Quadripartite Standardization Agreement under the ABCA Program is known as a QSTAG. Overall responsibility is the U.S. Army Security Affairs Command (USASAC).

f. North Atlantic Treaty Organization (NATO). The Conference of National Armament Directors (CNAD) has developed and implemented a system for the integration of national planning systems into NATO. The system is known as the NATO Armaments Planning Review (NAPR). It focuses attention on the most important and promising opportunities to achievement of standardization and interoperability within NATO. These opportunities are identified by detailed analysis of NATO



countries' annual plans for equipment acquisition and comparing them to priorities for achieving standardization and interoperability of equipment, determined by the NATO Military Committee in its biannual review of these plans. To facilitate program approval, an acquisition process similar to the Joint Requirements and Management Board (JRMB) process, called the Periodic Armaments Planning System (PAPS), has been established. The system starts with the development of an Outline Staff Target (ONST), similar to the Justification for Major System New Start (JMSNS). Under the PAPS process, a specific MOU is developed to provide the appropriate documentation for a cooperative program. Overall responsibility is at USASAC.

g. International programs identified after Milestone I are usually based on cooperative development or cooperative testing MOUs or on an IME program. The IME program was established to provide a method for evaluation of foreign systems to satisfy U.S. needs. The IME program is funded by DOD through USASAC and is managed by the Test and Evaluation Command (TECOM).

h. In the Production and Deployment Phase, most international programs are well-defined and documented. Normally, a national position has been decided on co-production, licensing, Foreign Military Sales (FMS), and cooperative logistics. The question of third country sales and configuration control procedures must also be resolved. Guidance is provided by USASAC.

i. Disclosure of information to a foreign government.

(1) Government-to-government. For a program where the transfer of classified information is involved, the information must be released on a government-to-government basis. Further, care must be exercised to assure compliance with U.S. Government arms export control laws as set forth in the Department of State ITAR. When transfer of classified military information is approved by the appropriate disclosure office, the information is to be transmitted government-to-government only, even in the case of classified information held by U.S. defense contractors when the ultimate destination is a foreign government or contractor. Normally, classified information is transferred to foreign governments under existing international agreements, FMS, or commercial arrangements under the ITAR (see AR 380-10).

(2) U.S. Contracts to Foreign Firms. An agency may initiate action to permit a contractor to award a classified contract to a foreign contractor, provided the classified information involved has been approved for release (or is determined to be releasable) to the government of the country under the National Disclosure Policy. In addition, the foreign

government concerned must have entered into a security agreement with the U.S. under which it agrees to protect U.S. classified information released to it. The agency must also, acting on its own behalf or on behalf of one of its contractors, communicate directly with the designated foreign government to--

(a) Request approval for placement of prime or subcontracts in the foreign country.

(b) Inform the foreign government of the intention to place a classified procurement with one of its firms and request verification of the foreign firm's facility security clearance and storage capability. Normally these actions are completed by the U.S. procurement activities in the foreign country/area. When the expenditure of both U.S. and foreign government resources are involved, a specific MOU may be required to further document each government's participation.

Once the contract has been approved by the foreign government, a number of security procedures prescribed by paragraph 8-104b, Industrial Security Regulation (ISR), must be accomplished by the agency. Further, the agency is required to inform the Director of Industrial Security, Headquarters, Defense Investigative Service (HQ DIS), when it authorizes a U.S. contractor to place a classified contract in a foreign country. The Director of Industrial Security, HQ DIS, is responsible for providing guidance to the appropriate cognizant security office regarding the U.S. contractor's obligation to safeguard any foreign classified information released to it. The U.S. firm's obligation in this regard would be based on an existing bilateral agreement, or otherwise in accordance with instructions received from the foreign government or foreign contractor releasing the information to the U.S. contractor.

(3) Foreign Contracts to U.S. Firms. When precontract discussions between representatives of foreign government and U.S. firm are expected to involve disclosure of foreign classified information to the U.S. firm, the foreign government should communicate directly with the Director of Industrial Security, HQ DIS, to--

(a) Obtain information on the present facility security clearance status of the firm.

(b) Determine the ability of the facility to properly safeguard classified information.

(c) Request clearance action in areas in which facility security clearance at the appropriate level has not been granted.

(d) Ascertain which cognizant security office will exercise supervision over security aspects of the contract.

(e) Obtain information on security clearance of key personnel with whom it will negotiate.

(f) Request instructions relative to appropriate U.S. Government classified visitor control procedures.

(g) Notify the cognizant security office when discussions between the foreign government or foreign firm will involve release or disclosure of foreign classified information to the U.S. firm.

The U.S. technology base is considered an asset crucial to national security interests. The U.S. Congress emphasized in the Export Administration Act of 1969 the need to use export controls "to the extent necessary to exercise the necessary vigilance over exports from the standpoint of their significance to the national security of the U.S." Current U.S. Defense policy on transfer of critical military technology has three aspects:

(a) Defense related technology is to be treated as a valuable, limited national resource to be conserved and invested prudently in pursuit of national security objectives.

(b) Transfers of highly advanced and revolutionary design and manufacturing know-how is to be limited to those which directly support specific national security objectives.

(c) Transfers of critical technology is normally to be supported to those countries with which the U.S. has a major security interest where such transfer strengthens collective security; contributes to the goals of weapons standardization and interoperability; and maximizes the return on collective investment in research and development.

The above policy alters neither the letter nor the spirit of our commitments to our allies. Instead, it is meant to encourage an increased degree of protection and control of critical technologies and the awareness of the threat to our collective security by technology loss.

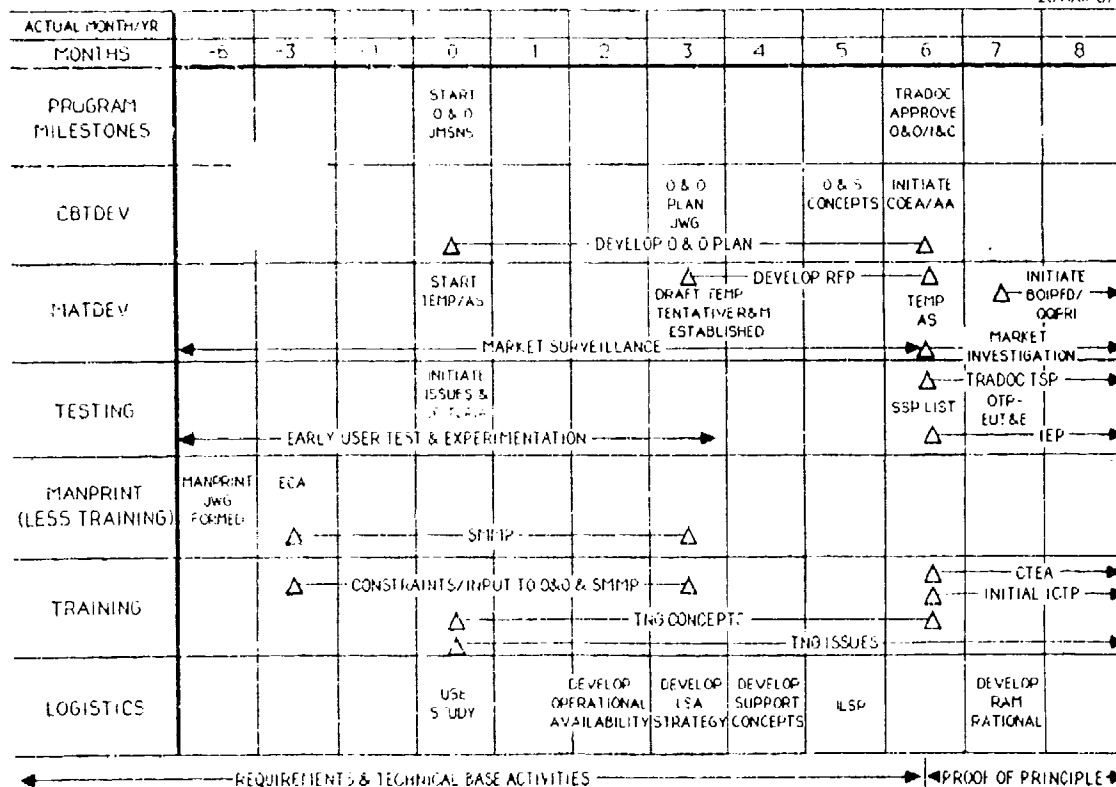
## **Appendix L**

### **MATERIEL ACQUISITION LIFE CYCLE MODEL**

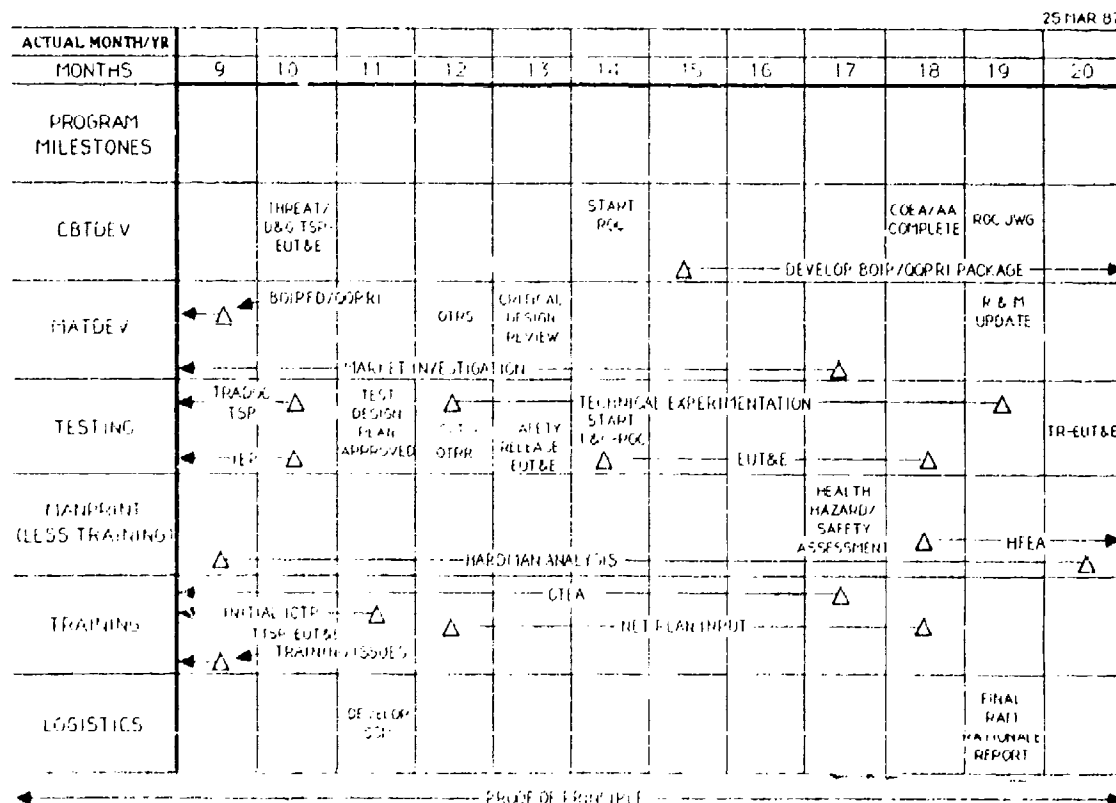
# ASAP DEVELOPMENTAL PROGRAM LIFE CYCLE SYSTEM MANAGEMENT MODEL

25 MAR 87

L

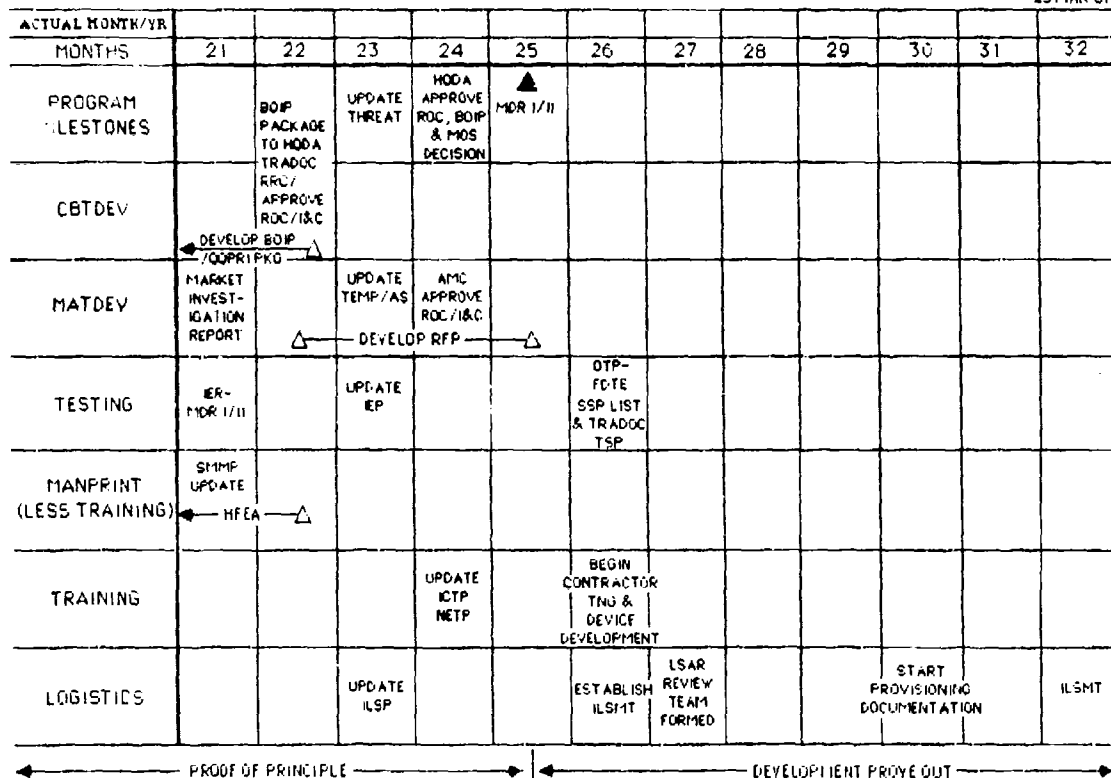


L.1

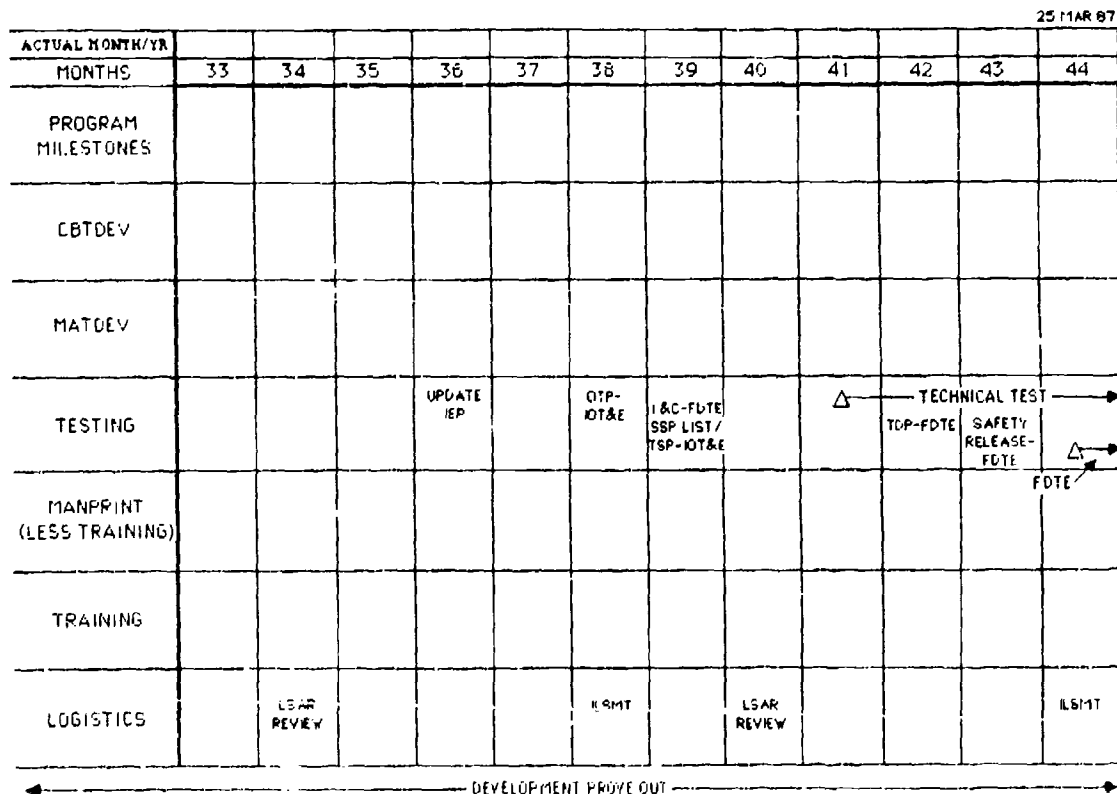


# ASAP DEVELOPMENTAL PROGRAM LIFE CYCLE SYSTEM MANAGEMENT MODEL

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**L.2**



# ASAP DEVELOPMENTAL PROGRAM LIFE CYCLE SYSTEM MANAGEMENT MODEL

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L

ACTUAL MONTH/YR												
MONTHS	45	46	47	48	49	50	51	52	53	54	55	56
PROGRAM MILESTONES												
CBTDEV										THREAT / D&O TSP- IOT&E		
MATDEV								OTRS- IOT&E			INITIATE ABOIPFD/ AQOPRI	
TESTING				FINAL ILF		TECHNICAL TEST REFINED TRADOC FDTE			TCP- IOT&E		SSP- IOT&E	OTRR SAFETY RELEASE- IOT&E
MANPRINT (LESS TRAINING)												
TRAINING									CAD/ITS COMPLETE CONTRACTOR TNG & DEVICE DEVELOPMENT	TTSP- IOT&E		TNG OTRS
LOGISTICS		LSAR REVIEW				ILSMT		LSAR REVIEW		UPDATE SSP- IOT&E		ILSMT

DEVELOPMENT PROVE OUT

25 MAR 87

L.3

ACTUAL MONTH/YR												
MONTHS	57	58	59	60	61	62	63	64	65	66	67	68
PROGRAM MILESTONES										HODA APPROVE ABOIP & MOS DECISION		
CBTDEV												
MATDEV												
TESTING	FDTE		TR OTE									TR- IOT&E
MANPRINT (LESS TRAINING)											UPDATE SMMP	UPDATE HEALTH HAZARD/ SAFETY ASSESS
TRAINING												
LOGISTICS		LSAR REVIEW				ILSMT		LSAR REVIEW				ILSMT

DEVELOPMENT PROVE OUT

# ASAP DEVELOPMENTAL PROGRAM LIFE CYCLE SYSTEM MANAGEMENT MODEL

25 MAR 87

L

ACTUAL MONTH/YR												
MONTHS	69	70	71	72	73	74	75	76	77	78	79	80
PROGRAM MILESTONES				UPDATE THREAT	MDR III							
CBTDEV												
MATDEV				UPDATE TEMP/AS								
TESTING		IER-MDR III	UPDATE IEP I&C-FOT&E OTF-FOT&E									SSP LIST & TRADOC TSP/OTRS
MANPRINT (LESS TRAINING)												
TRAINING				UPDATE ICTP NETP		BEGIN RESIDENT AND UNIT TNG PROGRAM DEVELOPMENT						
LOGISTICS		LSAR REVIEW		UPDATE ILSP		ILSMT		LSAR REVIEW				ILSMT

DEVELOPMENT PROVE OUT

PRODUCTION & DEPLOYMENT

L.4

25 MAR 87

ACTUAL MONTH/YR												
MONTHS	81	82	83	84	85	86	87	88	89	90	91	92
PROGRAM MILESTONES											FUE	
CBTDEV			THREAT/ C&O TSP-FOT&E									
MATDEV				OTRS								
TESTING		EP FINAL	TOP-FOT&E	SSP-FOT&E		OTRR	SAFETY RELEASE-FOT&E					
MANPRINT (LESS TRAINING)					REVIEW SMMP							REVIEW SMMP
TRAINING			TTSP-FOT&E		TNG OTRS	POI SUBMISSION		RESIDENT TNG BEGINS DELIVER TNG DEVICES	NETT UNIT TNG SPT PKG COMPLETE	COMPLETE NET TNG	COLLECTIVE TRAINING	
LOGISTICS		LSAR REVIEW	UPDATE SSP-FOT&E			ILSMT		LSAR REVIEW	TPF	PRODUCTION OF SPARES, TOOLS & PUBS		ILSMT

PRODUCTION & DEPLOYMENT



# ASAP DEVELOPMENTAL PROGRAM LIFE CYCLE SYSTEM MANAGEMENT MODEL

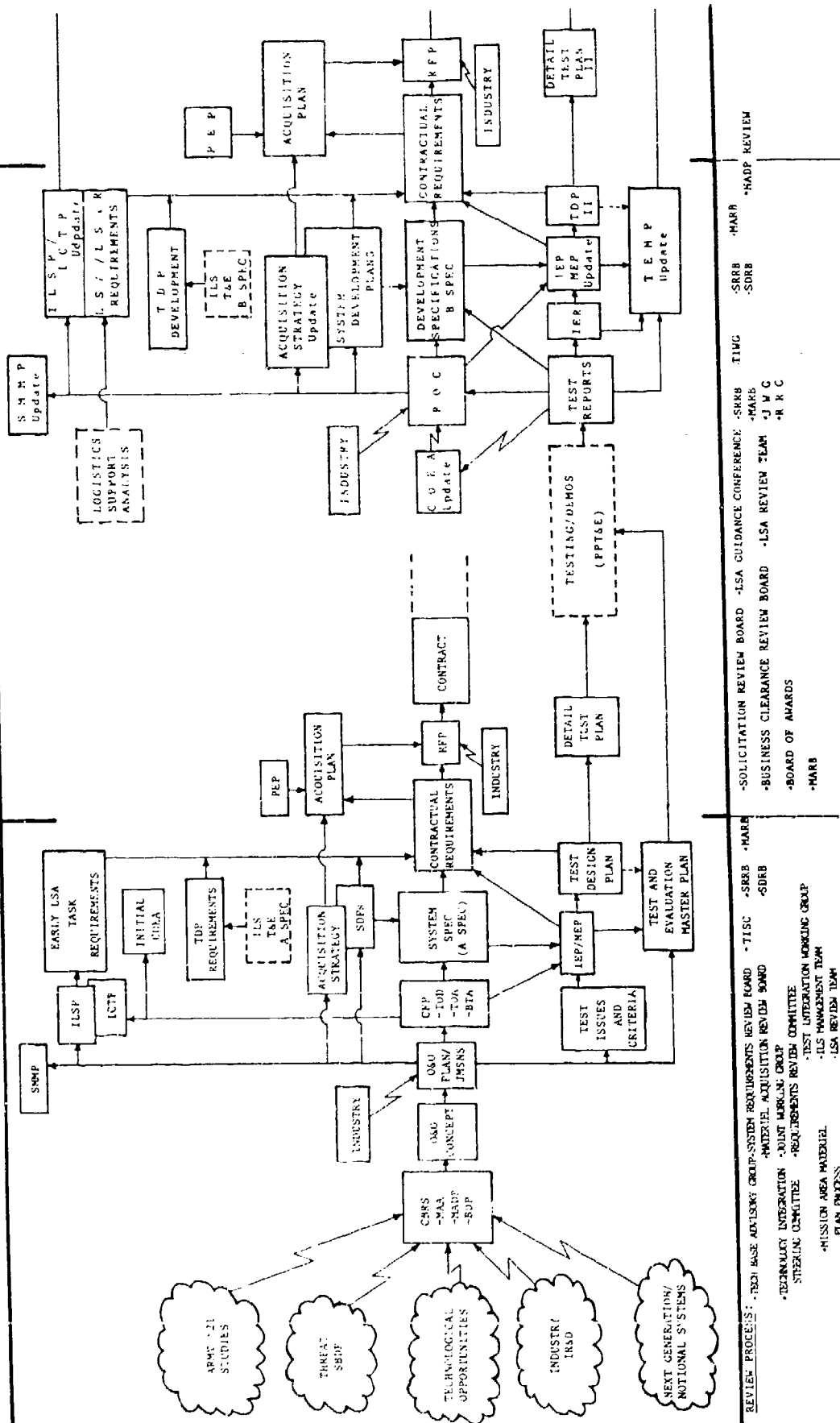
25 MAR 87

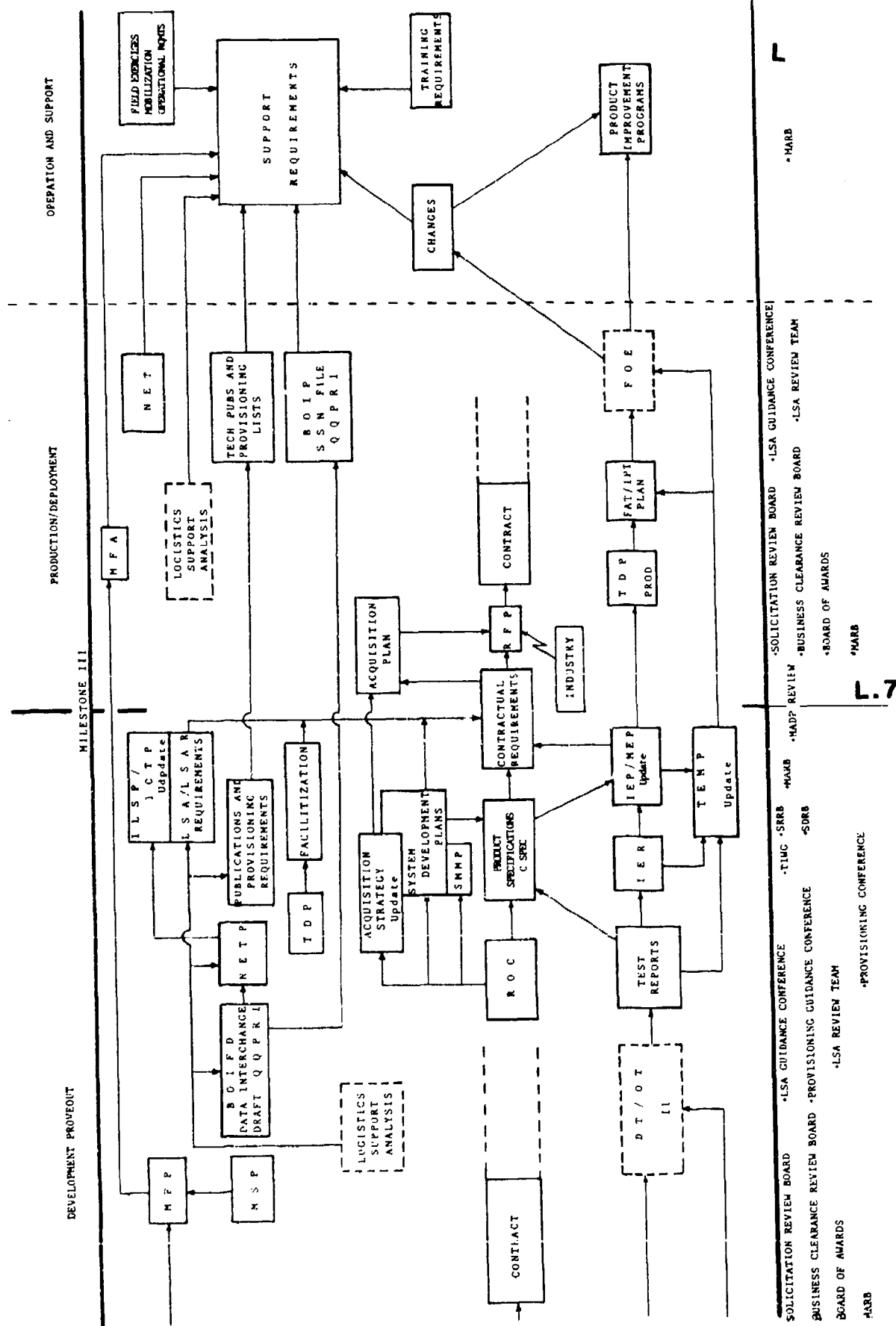
L

ACTUAL MONTH/YR												
MONTHS	93	94	95	96	97	98	99	100	101	102	103	104
PROGRAM MILESTONES					IOC							
CBTDEV												
MATDEV												
TESTING		TR-FOT&E		IER								
MANPRINT (LESS TRAINING)												
TRAINING		POST FIELDING EVALUATION										
		← COLLECTIVE TRAINING →										
LOGISTICS		LSAR REVIEW										

← PRODUCTION & DEPLOYMENT →

L.5





L

L.8

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